The Thesis Committee for Amy Elnora Jones
Certifies that this is the approved version of the following thesis:

The Social Construction of Mixed-use Development

APPROVED BY

SUPERVISING COMMITTEE:

Supervisor:

Steven A. Moore

Elizabeth J. Mueller

The Social Construction of Mixed-use Development

by

Amy Elnora Jones, B.A.

Thesis

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degrees of

Master of Science in Community and Regional Planning

and

Master of Science in Sustainable Design

The University of Texas at Austin

August 2012

Dedication

I dedicate this work to my father, Lynn Arthur Jones, who instilled in me the value of learning for the sake of learning.

Acknowledgements

The University of Texas at Austin is an impressive institution- a well-oiled, administrative and technological machine. The University of Texas at Austin School of Architecture affords access to remarkable resources.

I honor and appreciate the faculty of the Community and Regional Planning and Sustainable Design programs. Nurturing of interdisciplinary approaches, innovative viewpoints, and authentic openness, the faculty have impacted me deeply.

I am especially grateful to Liz Mueller and Steven Moore, for their flexibility and commitment; and, most especially, for their critical guidance, which has successfully challenged me to arrive at new academic and cognitive heights.

Abstract

The Social Construction of Mixed-use Development

Amy Elnora Jones, MSCRP; MSSD

The University of Texas at Austin, 2012

Supervisor: Steven A. Moore

This thesis has been pursued in the primary interest of exploring the relationship between planning and architecture specific to the mixed-use planning and development process. More acutely, this research has been conducted to investigate how human relationships and communication socially construct architectural technology. Through a constructivist lens, and reaching back to historic themes of human placemaking, this work reveals, that, history has, but yet again, to repeat itself. As people make choices about the built environment, those choices gain momentum, both socially and materially. Mixed-use development is one typological choice that is making a noticeable re-emergence. Amidst a suburban hegemony, will mixed-use development regain "typological momentum?"

Table of Contents

List of Tables

List of Figures

List of Illustrations

Chapter 1: Introduction

This chapter introduces the questions and contents of this thesis. In the first section, I offer a research statement, which includes my research question. It is embedded in some discussion of the issues. In the second section, I continue to lay out an overview of the founding problem addressed in this work. In the third section, I address the context of the problem by painting a historical picture of the geographical region in which the research supportive of this thesis has been conducted.

While Chapter One sets the stage for the thesis, Chapter Two provides an understanding of the methodology I have employed throughout the research, as well as, explains the methods. Chapter Three will provide a review of literature most relevant to the problem. Chapter Four is dedicated to providing findings and analysis based on primary data. In Chapter Five, I present the conclusions I draw from this work.

RESEARCH STATEMENT

My primary interest in pursuing this research is to explore the relationship that occurs between planning and architecture specific to the mixed-use development process in the United States. More acutely, this work explores the relationships, communication, and perspectives of the actors involved in the process. The purpose is to better understand how the interpretations and actions, of people, turn into the material world.

In general, there is an intimate and ongoing relationship between planning and architecture that helps birth the built environment. In the creation of cities and communities- large and small- heterogeneous actors are required to work together and make choices through a decision-making process. Mixed-use development is one

development type that actors are currently choosing over others. There are a number of complex factors influencing this and different actors interpret the situation in a variety of ways.

To some, mixed-use development is a hot topic, or at least new and interesting. Mixed-use development can be loosely defined as any mixing of land uses in a concentrated area. But a mixing of uses is not new. Historically, a mixing of uses was to be expected. In the United States, it was with the advent of zoning, and, in particular, single-use zoning, that enacted an un-mixing of uses in regards to new development. Single-use zoning designated sections of land for particular types of uses, such as for residential use or commercial use.

Architectural choices, in turn, reflected the zoning of uses. Architectural design is inherently related to use. Different types of structures are designed for particular purposes. A home is designed for living, and a store is designed for shopping. As buildings, of the same type of use, are concentrated in a zone they create a pattern of types. Such a pattern of particular uses and corresponding architecture become representative of a typology. An architectural typology can refer to characteristics of buildings and their environment.

Referring to a typology can help describe a type of building or a collection of buildings, and it is particularly noticeable when there is a presence of a repetitive architectural design. Different types of architecture are associated typologically with the built environment that surrounds them. A built form, as a typology, is comprised of a variety of traits having to do with architecture and other aspects of the built environment

that characterize its surroundings. A planned suburban area, for example, is typically characterized by single-family homes surrounded by a lawn. Many times a suburban typology is associated with a repetitive pattern of houses similar, if not uniform, in design. Typologically, we might expect houses to be set back a distance from a two-lane road. Characteristics such as tract housing and cul-de-sacs are to be expected within a suburban typological classification.

In contrast, within the context of a mixed-use development typology, buildings are close to the street, and we might expect residential dwellings in upper floors of buildings above retail uses, or a collection of multi-family dwellings in proximity. Typologically, buildings situated in the context of mixed-use development generally correspond with an overall pedestrian-oriented landscape. This type of scheme was historically evident in the past, but was diminished by single-use zoning. In recent times, city policies are making a shift to revive mixed-use zoning. Thus, the recurrence of mixed-use development can be understood as a return to an architectural typology.

As mixed-use development is approached in a contemporary context, what are the factors driving its revival? What are the varying interpretations as to its expectations or success? In the context of the mixed-use development planning process, this research is dedicated to understanding how actors interact and relate with one another. That is to say, who is involved and how does it take place? How does the social process construct the material product?

In order to get at this, it is through a science and technology studies (STS) perspective in which the problem is viewed. STS addresses the types of questions above exactly. An STS approach requires understanding social aspects in order to understand how a technology is developed. Concerning technologies, the approach encourages one to ask, "Why did they actually take the forms that they did?"[1] It is the view of STS that technological types are shaped by a number of influences. In the position presented herein, this view extends to apply to mixed-use development. Accordingly, this research has been conducted with the view that mixed-use development is one type of technology. Or, as is presented in this paper, the lines between science, technology, and architecture, have themselves been constructed.

It is generally accepted that architecture is a form of technology, insofar as any tool of the material world is a technology. Architecture can be interpreted as one kind of technology just as a hammer, door hinge, bicycle, or computer can be. An architectural typology can be interpreted as one tool within the field of architecture. A technology can be simple or complex. In STS, any technological product can be referred to as an artifact. Also in STS, a collection of technological artifacts can be referred to as a technological system. Following this logic, a mixed-use development can be interpreted as a technological system. It is made up of a collection of technological artifacts, such as different types of buildings and supporting infrastructure.

[1] Wiebe E. Bijker and John Law, "General Introduction," in *Shaping Technology/ Building Society* (Cambridge, MA: MIT Press, 1992), 3.

Thus, through the lens of the STS literature, the central research question of this work is: *How is mixed-use development, as a technological system, constructed?* Specifically, social construction of technology theory is employed to better understand the relationship between human action and resultant development. Social construction of technology theory proposes that human processes shape our technologies, and it is by understanding these processes, that better technologies may be created.[2] In looking at mixed-use development, as a technological system of the built world, what are the human processes that shape it? Similar to the social aspects that shape other types of technologies, what are the influences that shape this type of technological system? That is to say, what social influences shape types of architecture and development in the context of mixed-use development?

At the core of this research inquiry is uncovering how heterogeneous actors interpret various aspects of mixed-use development. Thus, a major aim is to identify and analyze the nuances embedded in the social context of the mixed-use planning and development process. All of this is applied to examine two cases of mixed-use development in central Texas. In relation to this, there is one STS concept important to incorporate and define upfront: the idea of the relevant social group. The term, "relevant social group," refers to: "institutions and organizations […] as well as organized or unorganized groups of individuals,"[3] that are pertinent to the design, development or use,

---

2 Wiebe E. Bijker and John Law, in Shaping Technology/ Building Society (Cambridge, MA: MIT Press, 1992), 4.

3 Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The*

of any given technology. Members of a relevant social group share meanings in regards to a technological artifact. Heterogeneous relevant social groups can have different meanings for the same technological artifact or technological system.

Heterogeneous relevant social groups assign different meanings to mixed-use development as a technological system. They also assign different meanings to various technological artifacts that help comprise the system. For example, developers and planners may define mixed-use development in different ways. Dually, planners and developers may view a particular aspect in different ways, such as how each assigns meaning to parking structures. In this thesis, I employ the idea of relevant social groups as a tool for analysis, and demonstrate how relevant social groups are not made up of homogenous actors. There may be identifiable trends and generalities, but just because actors belong to the same relevant social group does not mean they are in consensus.

In this thesis, I strongly consider historical themes and patterns of thought as relevant to the work. In numerous facets, this thesis begins with technological "progress" as it is associated with industrialization, but considers foundational philosophies reaching further back. In many ways, this work is as much as a statement about the long-term discourse of the effects of industrialization and technology as it is about the social construction of mixed-use development. Underlying the inquiry, of how heterogeneous actors interpret aspects of mixed-use development, are deeply rooted historical, philosophical, epistemological and political issues. Looking at how an artifact is

---

Social Construction of Technological Systems (Cambridge, MA: Massachusetts Institute of Technology, 1987), 30.

constructed calls into question how a fact is constructed. Actors rely on knowledge to interpret reality. But what if knowledge is subjective? Or political?

Of critical significance, is the nature of the creation of knowledge, and the belief *in* that knowledge, which influences how actors make decisions. How do actors know what they know? The construction and adoption of knowledge leads to "facts." Facts lead to practice and discipline. Disciplines- such as science, technology, planning and architecture- create the opportunity for collision or connection when actors come together in work. I could have said, "a shared goal" instead of "work," but that would have demonstrated a common assumption I hope to help unravel in this thesis.

I knew from the beginning that I wanted to explore STS theory by employing social construction of technology theory in some way hoping to bridge planning and architecture. I knew that I wanted to gather and analyze primary data by way of interviewing actors involved in the planning and development process. I knew I was interested in communication among actors, as well as, the social processes that lead to physical development.

Specifically, I wanted to identify at least two cases of mixed-use development that could comprise a comparative case study. I was interested in mixed-use development because it was my thinking that looking at the mixed-use development process would reveal rich insights due to its requiring diverse actors to work together. Additionally, the cases of this study are public-private collaborations. I anticipated that there would likely emerge challenges, conflicts, successes, and failures, inherent to public-private endeavors. A solely private or public project might not: a) have as many insights in this

context to bear, or b) offer accessible information, since the project would be more opaque, by nature of being one-sided or implemented by one-party involvement strictly for profit.

Something, I did not anticipate, is the role of one STS concept: technological momentum. Technological momentum has to do with the idea that a kind of technology can gain a solid presence or durability in society over time. This will be further discussed, along with other concepts of STS, throughout the paper. It is important to mention it here, because a major finding of this work has led to a new idea, important for the reader to consider along the way. This idea, an idea I am introducing, is *typological momentum.*

BACKGROUND

In Germany, today, the concept of transit-oriented development (TOD) does not directly translate into German. In a country about the size of the state of Montana, the entire nation is connected by public transportation at the user's convenience. Shops, eateries, businesses and homes, line the railways and bus routes, sharing a mutual viability with the passersby. In German culture, transportation, land use, and, generally, life, are one in the same. In German planner speak, there is no need to for the term "TOD," because, *why wouldn't you plan in an integrated manner?* For Germans, "urban design happens first and then zoning codifies the design into law."[4] In the German interpretation of planning, this makes logical sense.

[4] Faith Cable, "Design First, Codify Second," *Planning* 75, no. 7 (July 2009): 24.

Germany, and most of Europe, experiences quite tacitly what American planners are currently trying to accomplish by intention. Granted, the centralized geography of the European Union, and its supporting infrastructure, may simply have a historic advantage that the U.S. may never achieve but, the fact is, most of human history has been characterized by what we have now termed "mixed-use development." Since the beginning of time, humans have organized themselves, and their activities, in a centralized manner. Early societies conducted all of life on foot, and structures were created with certain flexibility.

Fast-forward to pre-industrial times, and this was still largely true for most urban areas. In an agrarian context, cities evolved into dense centers hosting a mix of uses, because people were still mostly on foot, and it made sense to have markets, craftspeople and services, in a centralized area. Farmers, who were typically scattered across wide-reaching land, might head into town on foot or by horse for trade and supplies. In support of these activities, it made sense for services to be located on the ground level, and for people, such as shop owners, to inhabit the upper portions of buildings.

With the Industrial Revolution, from roughly 1750-1850, several significant shifts started to occur. Pre-established city centers started to host industrial manufacturing. People started to migrate into concentrated areas for work as a competitive labor market gave way to capitalism. Simultaneously, the population in these areas grew immensely, and buildings began to tower over neighboring residences. The situation became concerning to people because it caused undesirable conditions- such as a lack of access to sunlight or fresh air- amidst pollution from manufacturing.

Such concerns caught the attention of early sociologists, and, in turn, would-be planners. Therefore, "the emergence of the profession of planning was itself a response to urban congestion and other urban problems."[5] One response manifested in the U.K. in the late 1800's. Ebenezer Howard was the lead proponent of a "Garden City Movement," where he advocated for the planning of separate but organized uses. He was one of many who objected to the way modern cities were being developed. Howard envisioned equal sections of land for agricultural, residential, and industrial uses, all surrounded by parks.

In the U.S., Edward Murray Basset, considered a founder of American urban planning, led the first commission in the writing of the first zoning laws in New York City in 1916. The regulations were written in response to the newly built Equitable Building. It was constructed to cover all of its land area, and towered so high it blocked its neighbors' access to sunlight. Basset led another group in the writing of the Standard State Zoning Enabling Act (SZEA), issued by the U.S. Department of Commerce in 1924. It was adopted by most states.

In 1926, the SZEA was upheld by the Supreme Court. The village of Euclid, near Cleveland, Ohio, had adopted the zoning ordinances in order to prevent industry from overtaking the town. Euclid was sued by Ambler Realty, and the case ended up in Supreme Court. The Court ultimately sided with Euclid, thus "Euclidian," or single-use zoning was officially born. Whereas the SZEA outlined a granting of power for government to have some control over planning and development, the case of Euclid set a

[5] David J. Hess, "Technology- and Product-Oriented Movements," in *Alternative Pathways in Science and Industry*, Urban and Industrial Environments 30 (Cambridge, Massachusetts and London, England: The MIT Press, 2007), 154.

precedent in terms of government regulation over the parsing out of land by use. Single-use zoning outlawed a mixing of uses in all new development, as well as, presented a new body of regulatory stipulations. One new regulation had to do with the enforcement of minimum road widths, reflecting a move towards automobile dependency.

Society's adoption of the automobile, and increasing level of dependence upon it, is particularly significant. Following World War II, manufacturers were freed up to produce automobiles in large supply and meet a growing demand. This allowed consumers to move around geographically. Growing automobile dependency, cities increasingly becoming separated by use, and the end of World War II, together made for fertile conditions for the rise of an American suburban typology. As U.S. soldiers returned home, there was a shortage of housing. The Servicemen's Readjustment Act of 1944 (the "G.I. Bill") made a huge impact. The bill provided services and support to veterans. In addition to a year of unemployment compensation, veterans received financial assistance such as business loans, aid for education, and low-cost mortgages.

A whole host of new residential Euclidian-style developments were constructed in suburban areas. Particularly, real estate developer William Levitt bought thousands of acres of land outside major east coast cities and built entire towns of prefabricated housing, a product of assembly line manufacturing. These types of towns were entirely planned with a separation of uses. They offered the "American Dream": a new home on its own parcel of subdivided land, in contrast to the congested city. Financially, builders of these types of towns had little risk for sales. Under the G.I. Bill, both the Veterans

Association and the Federal Housing Association guaranteed these housing options- for a fraction of the cost- to veterans.

Tens of thousands of families began to populate this new type of housing, paving the way for the American suburban typology to gain tremendous momentum. As the suburbs exploded, and cities de-industrialized, many businesses left the inner city to locate in proximity to suburban consumers. Supporting technologies expanded, such as roadways and the continuation of automobile manufacturing. Thus, the trend became one to reflect a growing city population, with more of the people living in the suburban areas, and, dually, automobile dependent. As this trend became the dominant pattern, a significant portion of the population vacated the urban core. Many refer to this phenomenon as urban sprawl, "the expansion of widely-dispersed development outside of an urban city center."[6] People and businesses, taking much of the working economy with them to the suburbs, meant for austere times for the people left behind. The struggling sections of the city, where people still dwelled, became known as "slums."

Under Harry Truman's "Fair Deal" program, the American Housing Act of 1949 gave power to governments in regards to mortgages and public housing. Federal government funded cities for the cost of the construction of new public housing, calling it "Urban Redevelopment." This act gave cities the ability to acquire and redevelop "slums." The Housing Act of 1954, the origin of "Urban Renewal," extended the original act. Urban Renewal, which loosely means urban redevelopment in high-density areas,

[6] "Urban Sprawl," *Environmental Literacy Council*, April 2, 2008, http://www.enviroliteracy.org/article.php/409.html.

was sharply criticized by a number of groups. Criticisms included that it gave irresponsible extensions of increased power to governments and developers. A mere two years later, the Federal-Aid Highway Act gave additional power to governments. Highway expansion was prioritized over established neighborhoods and local economies, destroying many of both. The program depleted the tax base as well as nurtured an increase in segregation. "White flight" carried many whites to the suburbs and non-whites had little option but to move into public housing.

A number of movements representative of groups and ideals as to how to address these issues emerged.[7] Jane Jacobs spoke out against programs of Urban Renewal, arguing that they did not rightfully consider the people inhabiting the inner city by allowing for the demolition of neighborhoods and outright gentrification. Jacobs' 1960's book, *The Death and Life of Great American Cities*, was critical in bringing attention to the issue. It was one of her main contentions that single-use zoning was the cause of ruin for inner city communities.

Jacobs is noted as one who planted seeds for others to seriously consider an alternate way of doing things. She represents the continuance of a critical tradition of planning reformation that began to emerge previous to World War I. She, and others, "Saw the [planning] profession as subservient to development interests and questioned the benefits of housing projects and other forms of urban redevelopment."[8] This conflict,

[7] David J. Hess, "Technology- and Product-Oriented Movements," in *Alternative Pathways in Science and Industry*, Urban and Industrial Environments 30 (Cambridge, Massachusetts and London, England: The MIT Press, 2007).
[8] Hess, "Technology- and Product-Oriented Movements."

between the critical planning tradition and the planning profession (as in favor of developers), represents just the tip of the iceberg in terms of movements and organizations vying for influence. There are many efforts, at many points of the conflict, representative of the different views of social groups such as developers, planners, architects, engineers, politicians and environmentalists.

Today, these kinds of issues still color public talk and action in cities. As most cities in the United States (that were once industrial) are now post-industrial, there is no longer a need for standard single-use zoning. In these post-industrial cities, some city planners continue to look for ways in which to keep the city core robust, if not revitalize a dying city. Downtown areas are still generally associated with a mix of uses; some of them remained throughout, due to moratoriums, or being "grandfathered in." The rise of gas prices and environmental concerns have forced the general public to reconsider automobile dependency.

Additionally, a new generation of Americans is largely an educated and "high tech" workforce. Many agree that citizens of the new generation are producing fewer children and creating employment opportunities for themselves in innovative ways. They do not necessarily operate according to traditional schedules or economies. They exercise flexibility as well as a desire to reside near an urban core with access to interesting amenities around the clock. Thus, a portion of the citizenry is making a move back to the city. This, in part, contributes to mixed-use zoning being re-introduced or adopted by a variety of cities.

As for environmental concerns through the late 20th and early 21st centuries, there has been a worldwide uprising generally having to do with sustainability in numerous forms. Activists the globe over have been increasing socio-political pressure in regards to environmental and economic sustainability. Amidst this climate, movements specifically related to planning and zoning have emerged, such as New Urbanism and Smart Growth.

All of this is to say, that, the United States- as a country and as a culture- historically made a move away from the mixing of uses, as well as, we have become an extremely automobile dependent society. But now, there is a surge of interest and advocacy for mixed-use development to be revived. What factors are fueling this surge? Given these factors, and a modern-day context, how do actors interpret various aspects of mixed-use?

Overall, there is a conflict of interests among Americans embedded in the "American Dream." On one hand, there are social groups pleading against sprawl, who see single-use zoning as a main contributor. On the other hand, many residents of "Suburbia" want to preserve the character of their neighborhoods as they have come to know them. In capitalistic America, and in the face of a struggling economy, families are pressured to preserve the property value of their homes. Single-use zoning helps protect home investments in suburban areas.

This conflict characterizes a national current. For planning and development, heterogeneous cities require approaches suited to their respective contexts. In the next section, I address the geographic context of the case studies central to this research. I

explore histories and themes, in order to gain a sense of how conflicts and issues might be characterized in their regional context.

CONTEXT

The purpose of this section is to provide a general background of settlement and growth in Texas, in order to understand the regional context in which the case studies are set. Understanding the historical context, of both the cities and the state, helps paint a picture of the region. This aids in gaining an overall insight relating to the process of technological evolution spanning several hundred years. I rooted this in some history reaching back to the dawn of industrialization. I wanted to touch on growth, economy, industry, policy and culture over time, to get a general idea of the character of the region. I also wanted to touch on some of the issues that come out of particular cities.

The case studies are situated in cities in central Texas. Central Texas is enveloped by the megaregion known as the "Texas Triangle." The Texas Triangle is configured by three major cities, at three points, Houston, Dallas and San Antonio. Austin is located roughly in the middle. All four cities serve as the county seats for their respective counties. These cities are among the largest in the country in terms of population. The megaregion is characterized by job growth and economic opportunity, and has a steadily growing population, a pattern not expected to change anytime soon. Texas is a low-tax, low-spend state. To clarify, there is no state income tax in Texas, but the State of Texas spends little on individual citizens.

There are a variety of aspects that make Texas an exception to many rules when compared to the rest of the nation. Texas has a complicated governmental structure.

Texas does not have districts. Texas state law legislates through extraterritorial jurisdictions. It is a complex system where incorporated cities have varying degrees of power over surrounding contiguous areas based on factors, such as population. Due to its geography, Texas has one of the largest transportation systems in the country.

In terms of attitude, Texans are often cited as having a "can-do" spirit, or it is often said that Texans would rather, "ask for forgiveness than permission." The protection of private property rights is important to a majority of Texans. Texas is a notoriously Republican state, and the birthplace of a variety of conservative political leaders associated with the protection of gun rights and private property. Hosting some of the nation's largest populations, highways, railways, and cities, the phrase "Everything is bigger in Texas," is in many ways true, even for planning and development. There is no doubt that a history, characterized by industrialization for the larger cities, helped set the stage for current growth patterns in the megaregion.

In what follows, I offer an historical background of the State of Texas and synopses of the four cities that make up the Texas Triangle megaregion. The four selected cities are pertinent in terms of their industrial evolution as well as their relationship to the region of central Texas where the case studies are situated. I compiled much of the historical information using archival resources.

Texas

The history of settlement and development in Texas is characterized by a plentitude of land. In the early 1800's, settlement laws were generous, entitling settlers to up to eleven leagues of land (4,428.4 acres per league) with little stipulation. Texas was still part of Mexico, and it was Mexican "Empresario Grants" that sparked settlement on now-Texan land. These grants basically entitled settlers to large pieces of land in exchange for populating it.[9]

The coastal regions in east Texas were settled first and, by 1836, colonies were being founded further north, along the Brazos and Trinity Rivers. The expansive size of Texas presented a challenge to both Spanish and Mexican rule. Colonists were challenged by delays associated with gaining settlement titles from agents almost 1,000 miles away. After Texas gained independence, in 1836, the new leadership found governing the Republic in the early years equally challenging.[10] One document reflected:

> Times were bad. The public treasury empty and private pocketbooks nearly so…the major problems facing Texans in this year of crisis 1841, were 1) lack of money 2) shortage of people 3) Indian depredations and Mexican threats and 4) low land values.[11]

Despite these challenges, the Texas Congress continued to encourage the settlement of the Republic through a liberal land grant policy. A General Land Office was established in 1837 to administer land and make policy decisions. One law, made in 1841, which

---

[9] David G. Woodcock, "Some Influences on the Growth of Two Texas Cities" (Texas Chapter of the American Planning Association, July 1964), Box 2, Folder 2, The History of Planning in Texas Project Records, Alexander Architectural Archive, University of Texas Libraries, The University of Texas at Austin.

[10] Ibid.

[11] *Seymour V. Connor, The Peters Colony of Texas: A History and Biographical Sketches of the Early Settlers* (Austin: Texas State Historical Association, 1959).

further extended rights for colonization and opportunities for land grants, had great impacts for the establishment of northeastern colonies, and particularly for Dallas County.[12]

The United States' attempt to annex the Republic was a pressure when the Republic formed, but Congressional setbacks prevented this from happening. The United States was able to officially annex Texas as a State of the Union in 1845. The threat of Mexico re-taking the Republic was also present, but was squelched by the War of 1846-48 (The Mexican-American War). Mexico ceded the land to the United States for $15,000,000.00. The boundaries we know now were established by the 1850 Compromise, with Texas losing roughly one third of its area in exchange for $10,000,000.00.[13]

Towards the end of the American Civil War, Texas was in anarchy, until the Confederacy made final surrenders to the Union. The Emancipation Proclamation was announced in Texas more than two and a half years after its creation. Civilian government is reported as being restored by President Andrew Johnson in 1866. Texas was readmitted to the Union in 1870, even though attempts for Reconstruction were not realized. For the next several decades, Texas, at-large, was characterized by social strife and agricultural depression.[14]

---

[12] Woodcock, "Some Influences on the Growth of Two Texas Cities."
[13] Ibid.
[14] Carl H. Moneyhon, "Reconstruction," *Handbook of Texas Online*, 2012, http://www.tshaonline.org/handbook/online/articles/mzr01.

It is difficult to accurately estimate the historical population of Texas, as Native Americans and African-American slaves were typically not included in the count. Yoakum's History of Texas states a population of 1,500 in 1744, and the Texas Almanac of 1857 estimates 50,000 in 1836. The first U.S. Census in Texas (1850) recorded a total population of 212,592. From 1880 to 1940, the Census reflects a steady increase of approximately one million people per ten years. The steady increase is related to the nation's incremental transition from agriculture to basic industry. It was in 1901 that Texas struck oil, marking of the beginning of one of the world's largest oil industry booms. In 1909, one author noted:

> In manufacturing Texas is apparently only at the beginning…as in all young countries where land is cheap and labor high, it would be impossible to procure factory labor as cheap as that of all the New England cotton mills, and not until the price of land shall have risen far beyond its present mark and the urban population is relatively much greater that at this time is it likely that Texas will rank high as a manufacturing state.[15]

Industrialization in Texas, from roughly 1870-1930, did nurture factors for it to become a manufacturing state. It was in 1940 that Texas began to largely benefit from its boom period and become the dominant oil manufacturer in the U.S. Houston and Dallas were the first cities in the state to urbanize, and others quickly followed.

Meanwhile, it was in the late 1920's that most cities in Texas adopted the Standard State Zoning Act in 1927. Houston and several surrounding cities were some of the only ones in the nation that did not adopt the legislation. In 1934, a case similar to the one in Euclid, Ohio, took place in Dallas, and the Texas Supreme Court upheld a

[15] Ibid.

Dallas comprehensive zoning ordinance and the Texas Zoning Enabling Act. With the booming oil industry, numerous Texan cities became industrial zones. Following the national trend, the combination of single-use zoning, a flourishing manufacturing economy, and the end of World War II, Texan urban areas acted as platforms for exploding suburban areas, characterized by automobile oriented planning.[16]

Still today, a majority of Texans live in urban areas. This is consistent with a 2007 U.N. Report stating, that, for the first time in history, more than half the world's population now inhabit cities. Global urbanization, and a fast-growing populous, raise many questions in regards to the nature of planning and development. And for Texan cities, a history of, and continuation of, enormous growth is a major factor.

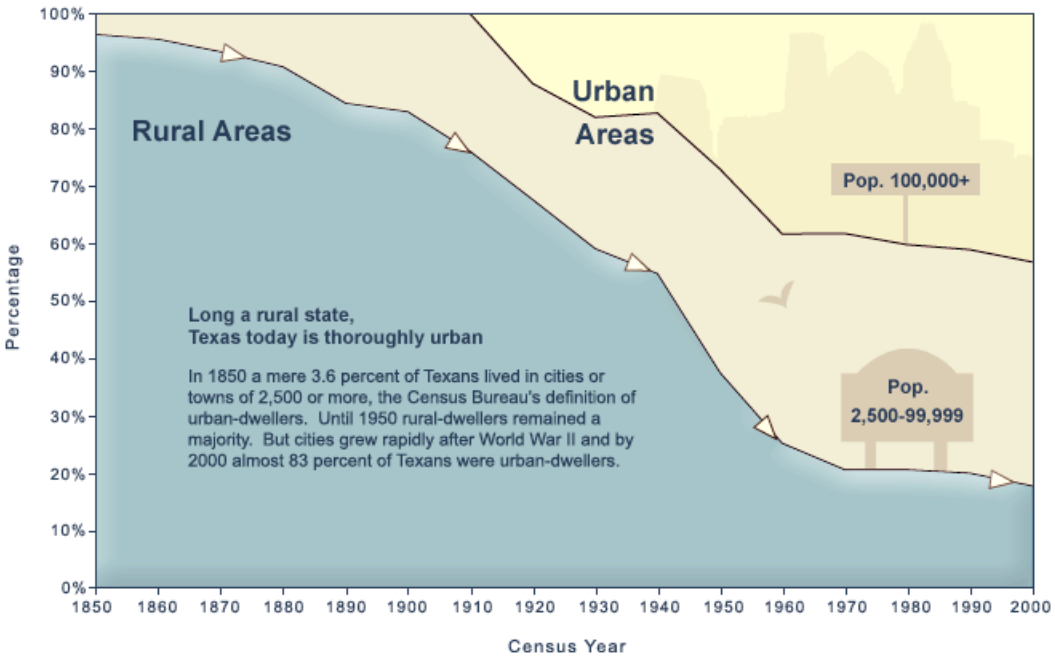


Table 1: Urbanization of Texas, 1850-2000. Source: US Census and Texas Politics at http://www.laits.utexas.edu/, 2006.

[16] Woodcock, "Some Influences on the Growth of Two Texas Cities."

Houston

In 1836, Houston was the first Texan city that started moving toward urbanization. Two real estate brokers from New York ventured to establish a city at the headwaters of Buffalo Bayou. The brokers prepared a town map and convinced the government to make Houston the capital city. Geographic and economic challenges hindered this early attempt. The land was flat and damp and nearby waters were hardly navigable. Economically, the Texan dollar was worth only half the U.S. dollar and banks were cutting off credit. Additionally, by 1839, a tenth of the population had been lost to yellow fever. A state commission decided the capitol building be moved to Austin.[17]

The Houston Chamber of Commerce had formed and was growing in influence. The Chamber advocated for the improvement of Buffalo Bayou as a navigable port for nearby colonies. The City established it as the Port of Houston in 1840. The port became an official port of entry for the U.S. in 1870, the same year Texas was readmitted to the Union. In 1913, Buffalo Bayou and its associated creeks and valleys continued to be a focal point of planning and development. A report, prepared for the Houston Park Commission, stated:

> The backbone of a park system for Houston will naturally be its bayou or creek valleys […] these valleys intersect the city in such a way to furnish opportunities for parks of unusual value within a comparatively short distance of most residential areas, those of the future as well as the present.[18]

In the 1920's, when most of Texas adopted single-use zoning- along with most of the nation- Houston did not. Despite this, a separation of land uses became the trend and

[17] Ibid.
[18] Ibid.

continues to characterize the urban pattern today. Economic interests in the hands of developers serve as de facto zoning ordinances. As stated in one 2007 business article:

> Developers employ widespread private covenants and deed restrictions, which serve a comparable role as zoning. These privately prescribed land use controls are effective because they have a legal precedence and local government has chosen to assist in enforcing them.[19]

The article goes on to say that developers in Houston are particularly concerned about maintaining profitability in suburban markets. Planned business and industrial parks are most attractive to investors. Developers have built a history of incorporating deed restrictions and "rigorous covenants"[20] to protect their assets.

All the while, in 2002, in the heart of the city, a comprehensive plan known as "Buffalo Bayou and Beyond" was produced with the goal of creating an open space system through Houston that would also promote opportunities for development. The plan addresses the integration of a variety of aspects such as the environment, recreation, transportation, and affordable housing. In 2007, a lead consultant reported on the status of the Plan's implementation:

> The number one challenge facing the Partnership over the next five years will be continued assemblage of land for conservation, flood management and quality development. It will take a concerted effort on the part of the Buffalo Bayou Partnership, private investors, friendly developers and elected officials to coordinate acquisition and development during this critical period.[21]

---

[19] Peter Coy, "How Houston Gets Along Without Zoning," *www.businessweek.com*, October 1, 2007.

[20] Ibid.

[21] Anne Olson, "Buffalo Bayou: Houston," in *Emergent Urbanism: Evolution in Urban Form, Texas*, 1st ed. (Austin, TX: University of Texas School of Architecture, Placemaking Studio, and Black and Vernooy, 2008), 109.

Overall, what is notable about Houston is, that, even without officially adopting single-use zoning, it still became the trend. It was driven by the economic interests of developers, and with the support of the city. Dually, we see a comprehensive plan directed at reviving part of the city's core, and original center, Buffalo Bayou. We see the national trend of suburban sprawl relating to the need for inner-city revitalization evident in Houston.

Dallas

Dallas received its first town charter in 1865, a time when multiple stage lines ran through the city. In 1873, major Texas railways intersected in Dallas, vastly increasing population and commerce. Dallas became a central market for raw materials. Dallas became a self-sustaining city during the Industrial Period.[22]

Dallas annexed the city of East Dallas in 1890, making it the most populous in Texas. Over the next few years, the city experienced several economic downturns, and resultant population fluctuations, but recovered by the turn of the century, at which time it was a leading market in a variety of goods. However, the city had a history of problems associated with flooding caused by the Trinity River and, by 1930, plans drafted by a city planner were eventually adopted and implemented to help curb this issue.[23]

Dallas experienced its oil boom about ten years earlier than Houston, in 1930, and business and construction was prospering. For the oil industry, Dallas became a financial

[22] Woodcock, "Some Influences on the Growth of Two Texas Cities."
[23] Ibid.

center for the region, banks financing for much of Texas as well as Oklahoma. Due to its economic strength, Dallas was not initially hurt by the Great Depression, but falling oil prices, and overproduction, left many unemployed in the 1930's. Dallas once again regained stability in the local economy when it became a major manufacturer for the war effort in the early 1940's.

One of the first planning commissions, the Greater Dallas Planning Council (GDPC), came together in 1946. In the wake of the adoption of single-use zoning, the end of World War II, and an exploding population, it was at this time that the group assembled. Meeting at the Petroleum Club, "The group which included several future mayors, agreed to form an independent municipal research bureau to study city problems, come to solutions and present them to the public and officials for action."[24] The group states, that, in 1947, an announcement was made claiming, "GDPC's 200 members serve as a valuable 'non-political' clearinghouse for city plan information."[25]

The group states the main areas of interest as being: urban design, planning, transportation, and water resources. The main reports of the group reflect a focus on budgeting, taxing, and county spending. The group mentions it has a history of building relationships with high profile business partners. The group reports that in the 1960's, issues associated with the inner city and the inner core suburbs entered the its agenda. In the 1960's, and going forward into the 1970's and beyond, the group has partnered with

---

[24] Administrator, "About GDPC," www.gdpc.org, April 2, 2010.
[25] Ibid.

city government on such items as a comprehensive plan for the city. One of the major concerns of the group has been, and continues to be, transportation.

It was in the late 1950's that Dallas started to realize its position as a center for high technology manufacturing when a Dallas inventor of Texas Instruments introduced the integrated circuit. In the late 1970's, and into the mid-1980's, Dallas experienced a major construction boom. In this period, an entire skyline was constructed, characterizing the city with sophisticated skyscrapers designed by acclaimed architects. At this point, most of the oil industry had relocated to Houston, and Dallas was economically secure due to technology, business, and banking.

In the 1970's, Dallas found the northeast quadrant of its urban core failing in the face of post-industrialization. But two major projects offered hope for revival. The Woodall Rodgers Freeway was about to be completed and the Dallas Museum of Art (DMA) was planning a relocation to the quadrant. In 1983, the freeway was complete, which, "Firmly delineated the northern edge of the Central Business District."[26] City leaders made the move to partner with consultants, and to utilize the DMA as an anchor around which they wished to devise a plan to restore the urban area. They sought to create a district for the arts. In order for this to be realized:

> The Plan adopted a broad, all-encompassing attitude about what constituted arts-related uses- with artists' lofts, craft boutiques, artisanal cafes, museum and performance venues being among the many uses encouraged. Of special note, much of this 1982 thinking, relied on strategies we recognize today as core New Urbanist precepts. These included an intense focus on the quality of the

[26] Duncan T. Fulton, "Dallas Arts District," in *Emergent Urbanism: Evolution of Urban Form, Texas* (Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008), 98.

> streetscape and the buildings that define it, prioritizing pedestrians over vehicles, zoning devices, such as build-to lines, calling for a mix of uses, encouraging live/work environments, and creating communal space along with programming to attract people.[27]

While the city, as a whole, and the Plan, have suffered from economic ups and downs over the years, the venture has proven to be successful with the anchor DMA attracting other private developments. A 50-story building, retail pavilion, sculpture garden, performing arts center, and high school for the performing arts, are some of the attractions. Today it is one of the largest, most successful arts districts in the U.S. Characterized by sophisticated architecture and high culture, it continues to evolve with additional development. A major mixed-use project and an Arts District Strategic Plan, by Fregonese Associates, "charts the next phase of life for what has become one of Dallas' defining urban districts."[28]

Dallas saw its real estate peak in 1985, after which there was a financial collapse before heading into a decade of recession. There was a short boom in the telecom industry in the 1990's followed by another recession. In the 21st century, the city has been stable and the population continues to grow. Residential high-rises have been built to accommodate the growing population, and one section of the City, Uptown, is one of the hottest real estate markets in the country. In 2006, the City of Dallas adopted forwardDallas!, a city-wide comprehensive plan that, "Envisions what kind of city within

---

[27] Duncan T. Fulton, "Dallas Arts District," in *Emergent Urbanism: Evolution of Urban Form, Texas* (Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008), 100.
[28] Ibid.

which Dallas residents want to live and do business."[29] In the written plan, the first item of interest in the introduction is, "Market-Tested, Mixed-Use and Transit Oriented Development Zoning."[30] In the document, it is explained that current city policies require that new development adhere to Planned Development (PD) districts. Individualized standards of PD districts make it tough for innovative development to occur. The claim that is made, in the plan, is that a new mixed-use policy would set clear ways for mixed-use zoning- consistent with business and housing interests- to be enacted throughout the city. It states, "Dallas must develop more effective mixed-use zoning regulations. The current mixed-use districts are not adequate to encourage profitable, mixed-use projects, particularly to transit oriented development (TOD), redevelopment and infill projects."[31]

In an online blog in December of 2011, blog participants discuss issues of livability in the Dallas area. The conversation was initiated by one person inquiring whether they should move to Dallas or not. About the suburbs, one citizen said:

> It's a grid where the corners are usually strip-center shopping and maybe apartments. The farther north you go it does get monotonous. It's hard to tell where you are as it all starts to look alike. Especially when you have the same chains! I think Plano was in the news recently trying rectify this zoning as it doesn't seem to age very well and it's not in line with the current big-box "power center" or mixed use method of real estate development.[32]

---

[29] "forwardDallas! Comprehensive Plan," *Www.dallascityhall.com*, 2006, http://www.dallascityhall.com/forwardDallas/comprehensive_plan.html.
[30] "forwardDallas! Comprehensive Plan" (City of Dallas, June 2006), http://www.dallascityhall.com/forwardDallas/comprehensive_plan.html.
[31] Ibid.
[32] "Should I Move to Texas - DFW Area from NorthEast? (Dallas: House, YMCA)," *City-Data Forum*, December 2011, http://www.city-data.com/forum/dallas/1438947-should-i-move-texas-dfw-area-4.html.

Another participant chimed in and offered:

> Some of the reasoning for the zoning as it is now, single-use zoning, is very much about money and the way banks like to loan it. Mixed use present more risk to lenders since it's all intermingled (and ultimately dependent on one another), and all the business aspects of that type of development have to stay viable. Most of the time these types of developments attract a specific type of buyers as well, which is someone who prefers amenities to say a backyard. I question the relative success of this type of development out in the burbs, closer to a city I can see it making sense.[33]

These comments demonstrate some of the kinds of shifting attitudes and perceptions of citizens in regards to current development as it relates to housing choices. It is notable that the first blogger identified "big box" and "mixed use" typologies as being en vogue. Dually notable is how the second blogger highlighted the role of lenders. These bloggers demonstrate an awareness of typological development on behalf of citizens.

San Antonio

San Antonio was one of the first cities to follow Dallas and Houston on the path to modernization. San Antonio first had to recover from the Mexican-American War. In the wake of it, a mere third of the population remained, numbering less than 1,000 inhabitants. In less than 15 years, however, the population spiked to nearly 15,000 people. In general, San Antonio can be characterized by rapid increases in population.[34]

Much like San Antonio experienced a rapid growth in population, it experienced a rapid modernization. It was in 1877 that the first railroad came to San Antonio, marking the end of its function as a center for the cattle industry. In the early 1900's, all streets

[33] Ibid.
[34] Woodcock, "Some Influences on the Growth of Two Texas Cities."

comprising the core of the city's grid were widened to make way for automobiles and a streetcar system. It is reported that many historic buildings were destroyed in the process.[35] In 1917, one of the oldest Air Force bases in the country, Kelly Field, was established. To present, San Antonio hosts a significant military presence, with an array of bases scattered about the city and its ETJ.

Incorporated towns surround the core of San Antonio. By and large, they were incorporated and populated from the 1920's to 1950's. Previous to World War II, there were a variety of architectural types characterizing the neighborhoods. For example, "bungalows" were a popular choice. Following the War, most housing was characterized by a "ranch-style." These towns are now known as the suburban areas of the city.

San Antonio's ever present cultural roots include those of the indigenous, Spanish and French. Accordingly, the city is noted for a vibrant cultural mix, akin to that of New Orleans. Given the cultural diversity and an array of attractions- such as The Alamo, The San Antonio River Walk, the first museum of modern art in Texas, a substantial convention center, and home of the NBA's San Antonio Spurs- tourism is one of San Antonio's primary industries. Other major industries to date include financial services, education, government, and health care. San Antonio's livelihood is partially dependent on its cultural traditions and related tourism. A consistent focal point for these aspects and the local economy is the city's "Riverwalk."

---

[35] Lewis F. Fisher, *Saving San Antonio: The Precarious Preservation of a Heritage* (Lubbock, Texas: Texas Tech University Press, 1996).

In regards to planning and development, a variety of master plan policies began to be adopted in 1997. Two of the most persistent items are historic preservation and growth management. In 2007, it was reported that improvement projects for the city would focus on the Riverwalk, extending it north and south to create a streamlined system of support for the Central Business District. The City began the creation of a Riverwalk master plan to guide, "the reinvention of the surrounding area."[36] The City hired a New Urbanist firm to oversee that the design and guidelines of the plan include the creation of the following features: an arts district, public spaces, riverboat and tram transit, and a mixed-income residential neighborhood. By 2008, a Riverwalk Capital Improvements Master Plan was released. In a 2010 update to the 1997 Comprehensive Plan, six themes were identified by a, "wide range of community stakeholders"[37] to guide the vision of San Antonio's future. These themes are: economic vitality, education, community character, livability/quality of life, environmental sustainability and multi-modal transportation.

A controversial issue in San Antonio is involuntary annexation. In line with Texas state law, Bexar County exercises extraterritorial jurisdiction (ETJ) over surrounding unincorporated land. More than half of the land that comprises the city has

---

[36] Sinclair Black, "River North: San Antonio," in *Emergent Urbanism: Evolution in Urban Form, Texas*, 1st ed. (Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008), 95.

[37] "San Antonio Master Plan Framework: Shaping the Future of San Antonio" (City of San Antonio, November 10, 2010), http://www.sanantonio.gov/planning/master_plan_comprehensive.asp.

been annexed in the last fifty years.[38] Annexation is a threat to citizens who enjoy lower property tax and affordable housing in the ETJ. Annexation of areas in the ETJ often leads to an increase of property tax, void of a satisfactory provision of municipal services. Representatives in city governance see annexation as necessary for the viability of the city and the area.

In 2011, a Bexar County Judge voiced concern to the Greater San Antonio Chamber of Commerce. He warned that rapid growth in the county will lead to urban sprawl which is, "not sustainable with existing resources."[39] If things continue as is, the City will not be able to sustain service levels. As the Judge sees it, the city has three options: urban counties be provided additional authority (from Texas legislature), urban counties be annexed by San Antonio, or a new city be incorporated. He said that if nothing is done it, "will lead to an urban disaster of significant consequences."[40] The Judge based this on the fact that, while there is a growing population and a growing demand for services, at the same time, Bexar County has not raised taxes in a decade, and is using fewer employees to meet the demand comparative to the past.

Overall, even in light of the Bexar Judge's warning, the County and the City have made no significant annexations in years and there are no plans to do so. Texas Legislature has made aggressive annexation very difficult. Thus, the Judge reports that

---

[38] City of San Antonio Planning Department, "Growth Trends" (San Antonio, July 2007), www.sanantonio.gov/planning/powerpoint/Growth_Trends_092506.pps.
[39] Jessie Degollado, "Bexar County Judge Warns Of Urban Sprawl," *Www.ksat.com*, November 14, 2011, http://www.ksat.com/news/Bexar-County-Judge-Warns-Of-Urban-Sprawl/-/478452/4744696/-/h3npo6/-/index.html.
[40] Ibid.

San Antonio is trying to encourage inner city growth instead. This involves increasing tax incentives, reportedly for housing and employment.

Austin

Spanish missionaries at the Colorado River, and surrounding springs, settled Austin in the early 1830's. A Native American population was present, and was later joined by immigrants from European countries such as Germany and Italy. Originally named Waterloo, it was chosen to be the capital of the Republic of Texas and named after "founding father," Stephen F. Austin. He is acclaimed for facilitating the settlement of 300 families to Austin, based on an Empresario grant he inherited from his father.[41]

Austin started to gain momentum in the areas of business and education, and, with the coming construction of the Republic's capitol building, also in areas of regional governance. It is reported that development in Austin (and central Texas) was slowed due to conflicts with Native Americans and that Stephen F. Austin made a treaty in regards to boundaries with a conglomerate of tribes. Austin was charted in 1835 and the design and implementation of a capitol building, and supporting street grid system, were soon to follow. In the early 1800's, Austin proved to be an educational center, hosting a public school system and two institutes of higher learning. Completed in 1888, the capitol building made Austin's prominence official, as well as the city expanded its limits three-fold.[42]

[41] Woodcock, "Some Influences on the Growth of Two Texas Cities."
[42] Ibid.

While Dallas and Houston experienced the benefits of the oil booms, these booms did not so much affect Austin. Given the natural environmental resources that characterize the landscape of the greater Austin area, low-impact technologies, such as river dams that both powered a streetcar line and a special lighting system (Austin's "moonlight towers"), were employed. The city government built on such resources in the years to come by way of beautification and preservation projects.

Its pristine natural environment continues to characterize Austin today. Among major attractions are a variety of lakes, parks and natural springs, such as Barton Springs, which has been vehemently preserved by Austin's vibrant activist culture. Austin is the home of several top schools and universities, and it is considered to be a highly educated city. The establishment of civic value on natural resources, throughout the late 20th and into the 21st centuries, helped make Austin a prime breeding ground for technological industry.

High tech companies began to settle the area in the mid-1900's, with semiconductor and software companies, in particular, making a significant impression. A variety of national and international companies located their headquarters in Austin, which is often referred to as "Silicon Hills." This growth in high tech industry has remained consistent. As one economist noted, "Austin's expansion since 1988, driven by computers, microelectronics, and software, has outpaced that of other medium-sized high technology centers such as Raleigh-Durham, Phoenix, and Colorado Springs."[43] The growing technology business is supportive of an inmigration of the new generation- a

[43] Michael Oden, "From Assembly to Innovation," *Planning Forum* 3 (1997): 14.

mentionable portion being independently employed (such as acting as free-lance consultants), and marketable for live/work architecture.

One urban focal point in Austin is the Central Business District (CBD). The CBD was largely constructed at the turn of the 20th century. It was initially comprised of small-scale brick buildings. Beginning in the 1920's, many of these smaller buildings were replaced by larger structures, supportive of elevator technology. After World War II, as one author notes, "the automobile pulled mercantile operations out of the CBD while banks, offices, hotels and department stores replaced much of the remaining nineteenth-century building fabric."[44] In the 1970's, banks mostly occupied the ground floors of these buildings, with law offices occupying the upper floors. By 2008, the district was slated for the development of 25,000 residential units.

One author contends that, "While many cities have created rings of destruction around their core with industrial uses that leveled existing neighborhoods, Austin has little history of industrial land use to speak of."[45] Yet, Austin's city core is skirted by large suburbs. In this way, Austin did follow the national trend of moving towards a built environment characterized by a suburban typology. This was facilitated by enormous roadway expansion, associated with the Highway Act, and in the purpose of connecting the Capitol to the rest of the state.

---

[44] Sinclair Black, "The DNA of Austin," in *Emergent Urbanism: Evolution in Urban Form, Texas*, 1st ed. (Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008), 14.
[45] Ibid.

The City of Austin recently adopted a new comprehensive plan, "Imagine Austin." City departments held a series of neighborhood planning processes to obtain input from citizens about future aspirations. These processes were to represent the views of the citizenry, per neighborhood, by identifying and establishing goals for enhanced neighborhood livability. A dominant marketing phrase of the new plan is, "I imagine Austin: safe, walkable, mixed-use neighborhoods."[46]

A hot issue in Austin is gentrification. As Austin grows, it faces a big challenge in providing housing, particularly affordable housing, for Austin's growing low-income population. Following the national trend, many whites vacated the inner core by the second half of the 20th century, but have been returning and displacing non-whites. This has contributed to a furthering of racial segregation, that began when segregation was enacted outright in a 1928 Comprehensive Plan. Given the presence of a major university, students have played dual roles: one as gentrifiers and another as advocates.

Meanwhile, Austin is characterized as a lively arts culture, hosting two major multi-media festivals per year, and is acclaimed to be the, "Live Music Capital of the World." With tourism, and numerous attractions, the city continues to grow, with population projected to increase at a minimum of 3,000 people from 2010-2015.[47] Austin continues to draw people for employment, education, culture and tourism. With a need to accommodate growth, coupled with sustainability goals for urban infill- in the context of

---

[46] "Imagine Austin. Vibrant. Livable. Connected.," *Imagine Austin*, 2012, http://www.imagineaustin.net/.

[47] "Population Data for Texas," *Texas Department of State Health Services*, February 27, 2012, http://www.dshs.state.tx.us/chs/popdat/ST2010.shtm.

an already vibrant downtown- the City of Austin has entered into a variety of mixed-use development collaborations. These mixed-use projects have been fueled by city regulation, including guidelines for form-based code. One mixed-use development, that has caught wide attention, is the redevelopment of the Mueller Airport, hosting an array of innovations, such as mixed-*income* housing and a smart-grid demonstration project.

Implications

The industrialization of Houston and Dallas set the stage for central Texas as a region. While Austin and San Antonio never industrialized like Houston and Dallas, following their lead, they were quick to modernize, and then urbanize. The astonishing pattern of urban growth, established by both single-use zoning and the end of World War II, has yet to lose momentum.

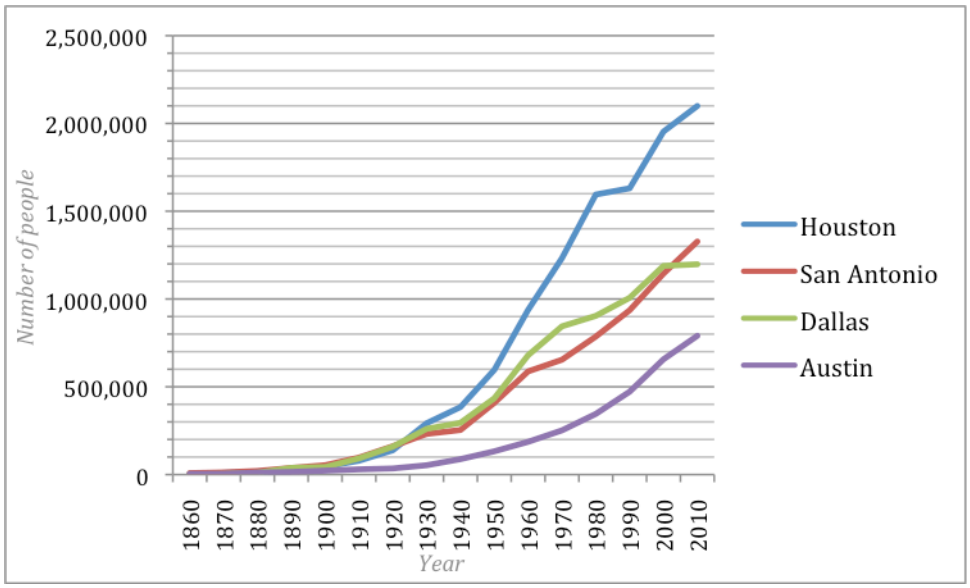


Table 2: Population Growth of Four Texan Cities, 1860-2010. Notice population spikes consistent with the years following Euclidian zoning and World War II. Source: Amy E. Jones, 2012.

In post-industrial times, the cities demonstrate a general shift to industries such as banking, finance, education, health care, and technology. The four cities seek to manage growth by densifying the city. We see cities revitalizing the urban core, often the same core of the past, and leaning on New Urbanistic principles, or actors, for guidance. Harnessing culture, arts, and tourism, and reviving central business districts are common approaches.

There is a theme of struggle between the emergence of, a) mixed-use development and New Urbanist principles, and, b) a suburban typology that has now gained momentum. The history of each city reveals a deep relationship between developers, real estate agents, bankers, businesspeople, politicians and government actors, particularly planners. Within the details, there are moments of contradiction, which suggests the existence of conflicts of interest.

A common thread of cities' main concerns has to do with growth and transportation. This highlights a conflict between growing populations and city entities maintaining services to citizens. Increased services translates into taxes being raised, which affects perceptions about stability and certainty for citizens, particularly homeowners. Families are already struggling in today's economy.

San Antonio and Austin are unique, compared to the larger post-industrial cities, because they do not need to resuscitate "dying" districts, but need to accommodate a growing population by densifying. San Antonio is challenged to attract citizens inward, since social groups are in disagreement as to annexation.

Historical differences amongst Texan cities translate into regional character over time. All of these cities were of the first to become highly populous, and remain among the largest in the state, and in the nation. A look at settlement and development patterns illuminates how historic civic traditions relate to what is to come. Austin had its roots in education and governance, and is one of the most educated cities today. San Antonio can largely be characterized by transportation conditions and cultural heritage, then and now. Dallas has consistently woven a thread of high arts, fashion and architecture for over a century. Meanwhile, Houston continues to harness the area surrounding the same headwaters at which it was founded. All in all, these themes reflect a level of physical and social continuity. Both aspects gain agency over time.

It was in looking at the history of Texan settlement and development that I first began to realize the significance of the trend of a move back to mixed-use development. The evolution of the Texan urban form demonstrates cities are selecting mixed-use development as an architectural choice that meets the needs of their citizenry, amidst a suburban landscape that has gained momentum.

Chapter 2: Methodology and Methods

The purpose of this chapter is to explain both the methodology and the methods I used to facilitate an investigation of the problem. I employed two methodologies: constructivism and grounded theory. Constructivism characterizes my overarching methodological approach, most consistently, and grounded theory characterizes my research methods, most consistently, but the two go hand-in-hand. There is literature supportive of a constructivist grounded theory approach, which is applicable to this work, but I more closely followed a constructivist methodology than a grounded theory methodology, throughout.

Specifically, I followed the STS interpretation of constructivism, and most specifically, social construction of technology theory. In the first section that follows (Methodology), I begin by discussing STS and social construction of technology theory, and how they inform this work.

In the second section (Research Methods), I explain how I executed research methods by describing them in detail. The research methods I describe include: approach, collaborative method, data collection, and data analysis. Within this, I intertwine some discussion about grounded theory and how it is used.

METHODOLOGY

Constructivism is a research paradigm or epistemological stance that acknowledges the subjectivity of reality. The way in which Wiebe E. Bijker, John Law, and Trevor J. Pinch, put words to social constructivism initially caught my attention in considering an STS approach and has generally guided my methodology. There are two

statements in particular that struck me as having an attractive logic, pointing to a straightforward tool for analysis, that have stuck with me. The two statements are:

> The processes that shape our technologies go right to the heart of the way in which we live and organize our societies. Understanding these processes might help us to create different or better technologies.[48]

> Technological artifacts are culturally constructed and interpreted […] there is flexibility in how people think of or interpret artifacts [and] there is flexibility in how artifacts are designed.[49]

These statements served as my theoretical foundation as I pursued the research process. I returned to them many times to re-ground my work when it reached seemingly daunting points.

Many STS authors argue that we humans take our technologies for granted. Meaning, we do not often think very deeply about the origins of all of the things that we use in daily life. Bijker and Law acknowledge that, indeed, it would become overwhelming if we routinely considered the existence of everyday technologies, such as saucepans or automobiles. To move about our busy lives almost requires us to disconnect from the essence of these technologies. As they put it, "The conduct of daily life surely demands a tactical lack of curiosity!"[50] And this lack of curiosity comes with the cost of not knowing or assessing how our technologies might have been different or served us more efficiently.

---

[48] Wiebe E. Bijker and John Law, "General Introduction."
[49] Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 40.
[50] Wiebe E. Bijker and John Law, "General Introduction," in *Shaping Technology/ Building Society* (Cambridge, MA: MIT Press, 1992), 2.

The idea of analyzing this taking-for-grantedness is a common theme in STS. Technologies embody a synthesis of science, history, politics, and many other things. The diversity and complexity of the creation of technology is often overlooked. This applies to both social and material aspects. A social constructivist approach motivates a deconstruction of how we understand our technological artifacts. What if we could "open up" a spoon? Or a sidewalk? What would they tell us? The "black box" is used in STS as a conceptual tool for revealing the human processes or controversies embedded in technological artifacts. In STS, we can refer to "opening" or "closing" or "lifting the lid" of the "black box." Opening the black box is to remove the option to take its contents for granted.

If we open the black box of our technologies, we may make discoveries about them, such as, what has led to and shaped their design and creation. A social constructivist approach might help illuminate, "the ways in which professional, political, or economic factors may have given form to those designs- or the way in which they were implemented in practice."[51] Such illuminations might hold promise for understanding types of technology better. As a result, we might learn how to identify points in design processes, open for adjustment, that, if tweaked, may harness the potential for a different product, such as a more environmentally safe one, a more equitable one, or a more gender neutral one, just to name a few.

[51] Wiebe E. Bijker and John Law, "General Introduction," in *Shaping Technology/ Building Society* (Cambridge, MA: MIT Press, 1992), 1–2.

Technologies are shaped by numerous factors played out on behalf of a variety of relevant social groups. There is no such thing as a "pure" technology, as it has been designed and created by a process inherent of negotiation.[52] A variety of scholars recognize negotiations are many times viewed as trade-offs. The kinds of compromises that Bijker and Law highlight as often being a part of the technological design process apply to an analysis of mixed-use development. Some examples are ones relating to:

> Politics, economy, the strength of materials, notions about what is beautiful or worthwhile, professional preferences, prejudices and skills, design tools, available raw materials, [and] theories about the behavior of the natural environment.[53]

Given these kinds of factors, "How does it happen that technologies ever firm up?"[54] *How and why does a technology take the shape that it does?* These types of questions are at the core of employing an STS view for analysis.

Science and Technology Studies (STS)

Science and technology studies (STS), and its related theories, has recently become an extensively documented field. One way to define STS is the study of:

> The social processes through which scientific and technical knowledge—whether packaged into texts, people, machines, images, or other forms—is created, evaluated, challenged, spread, transformed, and fitted into social relations.[55]

STS views science and technology as social activities. STS is a multidisciplinary field that has formed over the past forty to fifty years from a unique coming together of a variety of other fields similar in purpose. These fields include: science, technology and

---

[52] Wiebe E. Bijker and John Law, "General Introduction."
[53] Ibid.
[54] Ibid.
[55] "What Is Science and Technology Studies?," *Cornell University Department of Science and Technology Studies*, 2012, http://sts.cornell.edu/.

society (the "first" STS); history of technology; sociology of science; and philosophy of technology.

A large part of STS, and, particularly, the philosophy of technology, discusses an evolution of discourse that has taken place concerning the relationships of fundamental features in human thought. These include aspects such as: how we know what we know, how we construct "facts," how "facts" inform the creation of disciplinary fields, and how all of this coincides with policy and human action. Inherent in such, is a theoretical and ethical debate as to what is "right" concerning the development of technological artifacts, and the rights of the citizenry to have a say. Or even, *would artifacts be different, or better, if technological creation was a democratic process?* A consistent position among STS scholars is that, "Philosophical reflection and democratic discussion should play a larger role in shaping the technological environment."[56]

Coming out of the epistemological and philosophical foundations of the field, a major aspect of STS thinking is unraveling, or unlearning, if you will, the assumptions and interpretations embedded in dominant interpretations of science and technology. And, in accordance with this, Sergio Sismondo points out that no object is exempt as a subject of study.

Philosophical and Theoretical Foundations of STS Thinking

Previous to philosopher Thomas Kuhn's 1962 book, *The Structure of Scientific Revolutions*, the notion of scientific achievement as progress was generally accepted by

[56] Andrew Feenberg and Alastair Hannay, "Preface," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), ix.

American society. Kuhn helped begin a revolution in which scientific events in history were no longer solely understood as fixed stations on a pre-determined road to progress. Kuhnian theory made room for flexibility and irregularity in science. It emphasized that, scientists are human actors that conduct and influence science, and that, science is not a continuum of accepted facts and theories.

Kuhn posited that scientists share a common set of beliefs and understandings- past and present- that form "normal science." Participants in normal science share a paradigm and therefore share a perspective. Actors adhering to a particular paradigm operate according to respective methodologies and achievements. Actors of a paradigm share a "worldview" that provides, "categories and frameworks into which to slot phenomena."[57] The paradigm offers a practical aspect as a "form of life" that provides, "patterns of behavior or frameworks for action."[58] Scientists, as actors of the paradigm, are inculcated within the norms of the paradigm, and act within the confines of the extant worldview. Thus, solutions are confined.

Kuhn reveals that, it is within a paradigm, that practitioners might most effectively discuss progress, since there is common ground from which to discuss it. Alternately, heterogeneous actors from different fields or paradigms bring to the table theories that are "incommensurable" because they have different worldviews. Kuhn is of

---

57 Sergio Sismondo, "The Kuhnian Revolution," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 14.
58 Ibid.

the belief that one's paradigm to which s/he subscribes shapes one's observations. This is referred to as the "theory-dependence of observation."[59]

Sismondo observes, "The proponents of competing paradigms practice their trades in different worlds."[60] Relating that actors practice and communicate in different spheres, Kuhn introduced the idea of semantic incommensurability. The concept was met with the harsh criticism and Kuhn later offered a softer view, offering the terms "incomplete communication," "difficulty of translation," and "communication breakdown."[61] An important position emerging from this, is one that views fields of practice as "epistemic cultures."[62] In order for disciplines to communicate, standardization might be necessary.

Not long after the "Kuhnian Revolution," sociologist Robert Merton offered an influential functionalist view on the sociology of science. As a structural-functionalist, Merton sees society as a sum of parts, namely institutions, which can contribute to a stable and prospering society when structured well. Merton's social structure of science has to do with norms and ethics that guide scientific practice. Merton has stated that, "The institutional goal of science is the extension of certified knowledge."[63]

---

59 Sergio Sismondo, "The Kuhnian Revolution," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 16.
60 Sergio Sismondo, "The Kuhnian Revolution," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 17.
61 Ibid.
62 Sergio Sismondo, "The Kuhnian Revolution," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 19.
63 Sergio Sismondo, "The Kuhnian Revolution," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 23.

Through Merton's functionalist sociology of science, we can unwrap certain assumptions that we may share as a society in our perception of science. For example, we may often imagine that science and scientific practice is void of certain human influence and that facts of science are something fixed that scientists discover. Merton's approach helps to unravel such myths, and demonstrate that science, too, as an institution, is shaped by social structures.

Sismondo argues that this same thinking can be extended to technology. On the contrary, Paul Dumouchel makes an argument against functionalism as a plausible approach for getting at the true nature of technology. According to functionalism, machines can be defined by their connection to a specific organization. He is following Gilbert Simondon's appeal that such a definition is abstract and not technical. Components of functional systems, or systems themselves, can become abstracted, causing an oversight of important differences. In Dumouchel's words, "If our goal is to inquire into the nature of technical objects, it seems rational to avoid, at first, conceptual analogies which mask their specific difference."[64]

Albert Borgmann approaches the debate with a materialist position and argues that philosophy has been separated from material culture. As "science by way of technology"[65] gained momentum in modern times, it was deplete of philosophical theory. This is what led philosophers, such as Heidegger and Oakeshott, to bring theory back into

[64] Paul Dumouchel, "Gilbert Simondon's Plea for a Philosophy of Technology," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 258.
[65] Albert Borgmann, "Moral Significance of the Material Culture," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 86.

the discourse relating to practice. But, Borgmann argues that philosophy still remains disconnected from material culture. Namely, the ethical obligation to account for Enlightenment associated with material reality is absent. Borgmann acknowledges that liberalism and Marxism successfully highlight the moral dilemma inherent to material culture, particularly in relation to material goods. But he also views that it has all been reduced to power relations.

STS Theories

Four major views serve as touchstones for STS discourse. Technological determinism basically says that technology is the largest factor shaping society. In contrast, social construction of technology theory sees that society shapes or selects its technologies. Technological momentum presents a compromise between the two, and sees a give-and-take relationship that determines the material world. Actor-network theory focuses on the relationships between humans and technology, and the networks they create. In what follows, I explain each of these theories in further detail. I place the discussion about social construction of technology theory last, in relation to the other theories. This is because I discuss it in greater detail than the others, as well as, it relates directly to the subsequent sub-sections.

Technological Determinism

Technological determinism is a theory that assumes technology is a driving force that shapes society and its values. According to one definition, technological determinism, "refers to the human tendency to create the kind of society that invests

technologies with enough power to drive history."[66] It embodies the same kind of notion that was transformed through the "Kuhnian Revolution." Kuhn helped dispel a position characterized by a belief that scientific achievement is progress. Merritt Roe Smith argues that embedded in technological determinism is a belief that technological advancement is deeply linked to the American perception of progress. This "technocratic spirit"[67] emerged with industrialization, as did the notion of technology as progress.

Amidst the Industrial Revolution, the first thinkers and writers of technological determinism emerged in Europe in the 18th century and the debate quickly took root in the United States. The U.S. had established its independence, and many people were eager to achieve goals associated with progress and prosperity. Technology was thought of as a means for realizing such goals. Technology became tied to politics. For example, U.S. leaders, such as Benjamin Franklin and Alexander Hamilton, saw technological advancement as a way to promote liberty and the American Revolution. Meanwhile, Thomas Jefferson worried that, if "carried to extremes,"[68] corruption of technology could lead to moral and political demise. Amidst the formation of Republican mindset, the U.S. Treasury Department promoted technological advancement to citizens. In public appearances, and in writings, they, "openly attributed agency and value to the age's

66 Merritt Roe Smith, "Introduction," in Does Technology Drive History: The Dilemma of Technological Determinism (Cambridge, MA: MIT Press, 1994), xiv.
67 Merritt Roe Smith, "Technological Determinism in American Culture," in Does Technology Drive History: The Dilemma of Technological Determinism (Cambridge, MA: MIT Press, 1994), 1.
68 Merritt Roe Smith, "Technological Determinism in American Culture," in Does Technology Drive History: The Dilemma of Technological Determinism (Cambridge, MA: MIT Press, 1994), 3.

impressive mechanical technologies and began to project them as an independent force in society."[69]

Opinions and beliefs, in regards to technology, virtually infiltrated every medium of culture- from art to literature to politics. By the turn of the 19th century, and continuing through the Civil War, technological determinism was hegemonic. Themes of technology (primarily associated with industry) were represented by all possible media. One of the most influential items of technology being promoted was that of the automobile. The automobile is often referred to as a technology that legitimizes technological determinism. Some claim the automobile is responsible for changing the way we plan and design cities. This is a deterministic stance to say its influence, and seemingly irrevocable effects, has constructed society. More recently, Jane Jacobs and others have been known to challenge this position, and effectively attempt to put the onus back onto relevant social groups, by asking whether we are building cities for cars or for people.

Today, even non-determinists find themselves addressing technological determinism in the literature. Sismondo acknowledges it to generally imply that, technology forces changes in society, thus shapes history. While he does not necessarily see it this way, he accepts a perspective offered by Bijker, that, loosely, history is almost nothing without technology and technology is almost nothing without history. Following philosophical traditions, associated with Marx and Engels, thinkers such as Robert

---

69 Merritt Roe Smith, "Technological Determinism in American Culture," in Does Technology Drive History: The Dilemma of Technological Determinism (Cambridge, MA: MIT Press, 1994), 4.

Heilbroner and Langdon Winner acknowledge that technological decisions can encourage hierarchy and a particular class structure. To Ruth Schwartz Cowan, a way to understand technological determinism is by looking at the processes, "by which an artifact reorganizes social structure."[70]

Technological Momentum

Technological momentum infers that technology and society have a reciprocal relationship over time. It has a close relation to technological determinism. In the body of literature that explores deterministic theory, a "soft view" and a "hard view," have been debated.[71] A soft view states that, technology shapes society, but that, there is a reciprocal relationship in how society shapes technology. A hard view states that, technology, itself, is a force of its own, disconnected from social constructs. Most see technological momentum as similar to the soft view of technological determinism.

The term, "technological momentum," was coined by Thomas P. Hughes in 1969. Hughes proposed that, "technological momentum avoids the extremism of both, technological determinism and social construction, by presenting a more complex, flexible, time-dependent, and persuasive explanation of technological change."[72] While

---

[70] Ruth Schwartz Cowan, "The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 261.
[71] Thomas J. Misa, "How Machines Make History, and How Historians (and Others) Help Them to Do So," *Science, Technology and Human Values* 13 (1988): 308–331; Alex Roland, "Theories and Models of Technological Change: Semantics and Substance," *Science, Technology and Human Values* 17 (1992): 90–92; Merritt Roe Smith, "Technological Determinism in American Culture," in *Does Technology Drive History: The Dilemma of Technological Determinism* (Cambridge, MA: MIT Press, 1994), 5.
[72] Thomas P. Hughes, "Technological Momentum," in *Does Technology Drive History: The Dilemma of Technological Determinism* (Cambridge, MA: MIT Press, 1994), 104.

Hughes acknowledges the significance and usefulness of both technological determinism and social constructivism, he posits that, "both suffer from a failure to encompass the complexity of technological change."[73] According to Hughes, a key piece to technological momentum is the mentioned factor of time, in relation to society. People create a technology, but, over time, a technology gains its own influence over culture. Part of this has to do with human adaption to, and adoption of, technologies that can become an accepted (or rejected) part of life.

Hughes often relates technological momentum to the idea of a technological system. The way he relates the two is in the idea that a technological system can both shape and be shaped by society. In this light, one can imagine a relationship between city and society, where cities are understood as large technological systems. According to Hughes' technological momentum, as systems become more complex over time, technological forces gain an advantage over social forces.

Following Bruno Latour, Bijker and Law are of the position that technologies do not possess momentum on their own. Rather, technologies and technological momentum are dependent upon, and shaped by, the choices and processes of human actors. This is evidenced by the fact that some technologies evolve and take different forms or disappear all together. Technologies take shape and gain momentum only if human actors, "felt moved" or "obliged."[74]

---

[73] Thomas P. Hughes, "Technological Momentum," in *Does Technology Drive History: The Dilemma of Technological Determinism* (Cambridge, MA: MIT Press, 1994), 102.
[74] Wiebe E. Bijker and John Law, "General Introduction," in *Shaping Technology/ Building Society* (Cambridge, MA: MIT Press, 1992), 8.

Actor-Network Theory

The formation of actor-network theory is attributed to Michel Callon, Bruno Latour, and John Law. Actor-network theory understands "technoscience"[75] as a network of actors, human and non-human. In actor-network theory, lines between science, technology, and actors, cannot be clearly drawn. Accordingly, actors work together, affect each other, and change each other. Actor-network theory is a sociological framework, with technoscience at its center, and can be applied more broadly.

Sismondo demonstrates what is meant by non-human actors and the formation of alliances with human actors by discussing actors associated with the automobile industry. For example, he mentions Callon's description of French engineers working on an electric car. Given that electric car technology was something new to France, the engineers had to consider the feasibility of its acceptance by the public. As Sismondo reports, they were doing "engineering-sociology." The engineering and the sociology are inseparable."[76] Fuel cells, internal combustion engines, and body design, are non-human components that carry as much weight, and play as much of a role, as the engineers do. The technical vision and the social vision rely on each other (for failure or success) and, thus, are an alliance. When the French "engineer-sociologists"[77] met criticism, it was both the technical aspects and the social feasibility that were doubted.

---

[75] Sergio Sismondo, "Actor-Network Theory," in *An Introduction to Science and Technology Studies*, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 81.
[76] Ibid.
[77] Ibid.

Actor-network theory considers the non-human actors involved in sociotechnical processes. A fuel pump plays a role as does a scientist, and both, and the relationship between the two, are fair game for study. In this vein, actor-network theory is materialist. Social aspects are investigated to reveal the material translations they represent and create. Data, for example, is socially created, but it represents a variety of things we take for granted. Data is steeped in theory, application, practice, assumptions and interpretations.

A common theme in STS- that is pronounced in actor-network theory- is the elitism or exclusivity inherent in expert knowledge. As facts and knowledge become established and accepted by discipline, power is gained by actors building upon such a base. For the scientist, the laboratory offers legitimacy and protection. The "truths" that are established in the lab, come to be represented by equipment and data, and might come to be accepted as a "natural truth," as opposed to being thought of as one interpretation.

Social Construction of Technology

A response to technological determinism is social construction of technology theory, or social constructivism, or social determinism. The position is that technological artifacts are constructed socio-culturally. The ways in which technologies are used cannot be understood without understanding the social context in which they are embedded. By understanding the human processes that shape our technologies, better technologies may be created.

Social construction of technology thinkers see that, human actions, communication, and decisions, determine the physical outcomes we call technology.

Therefore, these thinkers are social constructivists. Social constructivists argue that society develops and controls how technology is designed and used. Social constructivism is useful for understanding the relationship between humans and technology. Understanding how technological artifacts are designed and made is increased by understanding social dimensions.

There is certain debate within the field in regards to models associated with the terminology, "social construction of technology." The first article that helped define it, and its related methodology, was written by Wiebe E. Bijker and Trevor J. Pinch and published in 1984. Pinch and Ronald Kline subsequently addressed the literature in 1996 to clarify that social construction of technology theory, as developed in the 1980's, represents a particular model with advantages for analyzing technology. Steeped in a Kuhnian perspective, it appears as though they were distinguishing their model from scholars in the realm of history of technology, which was a field with an arguably competitive perspective. I discuss the article in a forthcoming section in this chapter. To gain an understanding of the context in which social construction of technology theory was formed, it is necessary to first understand a bit about the sociology of scientific knowledge.

Starting in the 1960's, British theorists spawned a field of study known as the sociology of scientific knowledge, where they looked at science as a social activity. A collection of Scottish academics in the 1970's sought to understand better the sociology of scientific knowledge. This endeavor became known as the "strong programme in sociology of scientific knowledge." Social construction of technology theory draws

heavily from the Strong Programme. Thinkers built upon the Strong Programme, and on other writings, such as Hughes' analysis of sociotechnical systems. These schools of thought recognize the role of socio-politics and human bias in the creation of "facts" and "science."

David Bloor is most cited for laying out four tenets that guide the Strong Programme. The four tenets speak to foundational concepts of the programme's approach: causality, impartiality, symmetry, and reflexivity. Essentially, the tenets collectively advocate for an approach to better understand scientific knowledge through a sociological lens but in a way that makes room for new insights. The tenets speak to an unlearning, leaving no stone unturned for evaluation or questioning, in regards to the formation of scientific knowledge. It was effectively a way for sociologists of science to look at knowledge and facts wherein no assumptions could be taken for granted. The Programme allows for the investigation of basic epistemic foundations, and as Sismondo translates, it "can be extended to technological knowledge as well."[78]

Bloor's first tenet states that the sociology of scientific knowledge would be "causal," meaning, that it would be, "concerned with the conditions which bring about belief or states of knowledge." The second tenet upholds impartiality in regards to, "truth and falsity, rationality or irrationality, success or failure." This means that the expectation is that both sides of the dichotomies have to be explained. Thirdly, explanations would be symmetrical: "The same types of cause would explain, say, true

78 Sergio Sismondo, "Strong Programme and Sociology of Knowledge," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 48.

and false beliefs." Lastly, the approach would be one of reflexivity, where, "patterns of explanation would have to be applicable to sociology itself."[79]

Clarification of Key Terms

At this juncture, I would like to include a clarification of terms drawn from Bloor's tenets, and other STS terms, that will be employed in going forward.

Causality is concerned with the creation of knowledge. This concept is at the epistemological core in determining how actors know what they know.

Impartiality is a challenging expectation requiring thinkers to approach both sides of the dichotomies of truth and falsity, rationality or irrationality, and success or failure. This relates to objectivity, which is an intensely debated issue in the field.

Symmetry dictates that the same types of explanations are used for both successful and unsuccessful knowledge claims. The same types of causes would explain true and false beliefs. This can apply to explanations of the material world, such as technological artifacts. Looking at all of the components, inside and out, at multiple points in the creation and use of an artifact, is to apply the principle of symmetry.

Reflexivity requires that patterns of explanation apply back to the field itself. There is no object that escapes study. It encourages rethinking and careful analysis of one's own work and discipline. Reflexivity aids in looking at how things are constructed.

Relevant social groups are groups of actors that share meaning of an artifact. They play an important role in the development of a technological artifact. Defined

[79] Ibid.

another way, they are, "groups that influence the creation, demand for, the production, the diffusion, the acceptance, or the opposition to new technologies."[80]

Design flexibility says that there is more than one way to design and construct a technological artifact. A design can be viewed as but one point, in a large field of technical possibilities, reflecting the interpretations of relevant groups.

Interpretive flexibility says that technological artifacts are interpreted and used differently by different social groups. It also appears as "interpretative flexibility" in the British spelling. It is a term originally borrowed from solar physics, and distinguishes social construction of technology theory from other constructivist approaches.

Closure relates to interpretive flexibility in that closure is what occurs when interpretive flexibility diminshes. Technologies come to closure when conflicting interpretations come to an end, or appear to come to an end. Closure can be temporary because the conflict can reemerge despite the appearance of it having gone away.

Multi-directionality refers to the "alternation and variation in selection"[81] in the development process of a technological artifact. This is in contrast to a linear model of technological development.

Stabilization refers to the moment in the multi-directional process of the development of a technological artifact when the artifact is assumed to have achieved shared meaning by relevant social groups. Throughout the process, there can be varying

---

[80] Ruth Schwartz Cowan, "The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 262.

[81] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 411.

degrees of perceived stabilization attached to the artifact, and, in different ways, by different social groups. The concept of stabilization helps support the deconstruction of the myth that inventions are sporadic, isolated events (a theme in STS).

The "black box" is a concept borrowed from the discipline of engineering to describe a device meant for input and output, the inner workings of which need not be known. It represents knowledge and technologies taken for granted, and, commonly, that we build upon. Bruno Latour is credited for introducing this term to STS.

Obduracy refers to a condition in which an artifact becomes unmovable, not easily persuaded, stubborn, and/or resistant to moral influence. Anique Hommels incorporated the term into the STS literature by suggesting that human qualities are attached to an obdurate state of a city and its technology.

Some of these terms, such as interpretive flexibility, were introduced in a precedent study. I have included a presentation of this study next. It helps clarify concepts such as interpretive flexibility, closure, and stabilization, through a concrete example.

Precedent Study for Social Construction of Technology Theory

Trevor J. Pinch and Wiebe E. Bijker originally published, "The Social Construction of Facts and Artefacts: or How the Sociology of Science and the Sociology of Technology might Benefit Each Other," in the journal, *Social Studies of Science*, in 1984. The paper is set in the context of the growth of science studies and the parsing out of science and technology. Specifically, the authors are writing in the context of the sociological perspective of the two as being divided. As evidenced by the title, they

explore what might be gained or learned by considering the relationship between the social constructions of both science (as represented by "facts") and technology (as represented by "artefacts"). Of course, the claim they are making is that there is something to be gained. This seminal writing helped to define social construction of technology theory and it is where they introduce a three-stage methodology.

Bijker and Pinch sort out pertinent relationships via three bodies of literature: the sociology of science, the science-technology relationship, and technology studies. They continue to discuss two specific approaches: the Empirical Programme of Relativism (EPOR) and a constructivist approach to the study of technology. Bijker and Pinch claim that it is from these two approaches that an "integrated viewpoint has developed."[82] The integrated viewpoint is the social construction of technology. Whereas EPOR was developed in the sociology of scientific knowledge, Bijker and Pinch develop social construction of technology theory for the sociology of technology. Concepts and methods that were developed in EPOR for the purpose of explaining science are relevant in social construction for explaining technology.

In order to effectively move this type of thinking forward, Bijker and Pinch seek to develop a means by which to show, "that technology […] can be understood as a social

[82] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 400.

construct."[83] At the time, there were limited studies that did so. They borrowed directly from the EPOR approach to adapt a three-stage social construction of technology model.

The first stage has to do with demonstrating interpretive flexibility. Interpretive flexibility is showing that, "findings are open to more than one interpretation."[84] A social constructivist perspective allows that a fact (of science) or an artifact (of technology) is up for debate for a period of time. In relation to technological artifacts, there is flexibility in how actors interpret them and flexibility in how they are designed. This, "interpretative flexibility, however, does not continue forever."[85] A point of "closure"[86] is reached. For science, this may be dictated by scientific consensus, and, for technology, this might be dictated, also, by consensus (by relevant social groups), and/or by the market (Bijker and Pinch refer to these as "reification" and "economic stabilization").

The second stage of the methodology has to do with describing closure. It is to look at what brings interpretive flexibility towards a closure mechanism. For science, it "concerns mapping of mechanisms for the closure of debate,"[87] and, for social

---

[83] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 408.
[84] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 409.
[85] Ronald Kline and Trevor J. Pinch, "The Social Construction of Technology," in *The Social Shaping of Technology* (Philadelphia: Open University Press, 1999), 113.
[86] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 409.
[87] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 424.

construction of technology, it concerns the "stabilization of an artefact."[88] Stabilization is reached when relevant social groups share a meaning of the artifact. Stabilization is a complicated matter in social construction of technology theory. In science, stabilization "can be described in similar terms,"[89] whereas technologies are often defined by varying groups in varying ways. Bijker and Pinch refer to these variations in interpretations as characterizing stabilization in varying "degrees."[90]

Moreover, there are two types of closure that can take place: rhetorical closure and redefinition of the problem. Rhetorical closure, in relation to technological artifacts, takes place when relevant social groups view the matter as being solved, and a variation of the technology is selected, or adopted. Bijker and Pinch note that this often happens when a technology reaches market success by way of advertising. It does not mean that other technological types could not have survived or that new ones might still be introduced, but the issue is seen by relevant social groups as concluded. Redefinition of the problem has to do with assigning a new meaning to a technological solution. Closure can be reached by the presentation of new "facts," associated with a technology, to relevant social groups. For technology, this may not mean that every social group aligns in consensus, rather, it may mean that more relevant social groups are in alignment than not.

---

[88] Ibid.
[89] Ibid.
[90] Ibid.

The third stage has to do with relating "'closure mechanisms" to the wider social-cultural milieu."[91] Doing so is to look at the meanings that relevant social groups assign to technologies. These meanings can reflect norms and values, which can indicate larger socio-cultural and political forces shaping them.

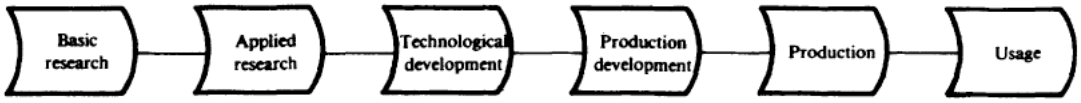


Figure 1: A Six-stage Linear Model of the Innovation Process. Source: Bijker and Pinch, 1984.

A fundamental concept in which all of this is embedded is a "multi-directional"[92] way of understanding the development of a technology over time. This is opposed to a linear model to which we might be accustomed (See Figure 1). In a linear model, possibilities that may emerge in the design process are overlooked. The linear model overlooks variations after a technological artifact has become established. According to the multi-directional model, variations of a technology that are considered in the design process are equally considered to explain a social construction of technology. This points to the idea of design flexibility, which embodies the idea of interpretive flexibility. This also points to the principle of symmetry, which considers what can be learned from both successes and failures in a consistent manner. I find the multi-directional model is easiest

[91] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 409.
[92] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 411.

to understand when thought of as similar to Darwin's theory of evolution. Along the way, some variants die, and some survive, as part of the (natural) selection process.[93]

Bijker and Pinch use the development of the bicycle as an example of a technology to illuminate this methodology. In the late 1800's, some of the first machines, now known as "bicycles," were described as, a "high-wheeled ordinary," a "penny-farthing" or an "ordinary."[94] Meanwhile, other types were being designed, created and marketed. The "safety ordinary" and the "Bicyclette"[95] are two. *This demonstrates design flexibility*.

There were multiple relevant social groups informing the initial development process of the bicycle. Broadly, they were consumers (or users), producers, and anticyclists. Bijker and Pinch recognize that there may not always be homogeneity in how members of a social group assign meaning to, or use, an artifact. A heterogeneous relevant social group can be further divided. Within the group of users, most commonly riding the high-wheeled ordinary, at the time, were "young men of means and nerve."[96] (Not to mention, it was socially acceptable for them to wear pants). Also within the groups of users, they identify women cyclists as a separate social group. Herein lies some very interesting history in regards to the development of technology and the

---

[93] Ibid.
[94] Bijker and Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other."
[95] Wiebe E. Bijker and Trevor J. Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," *Social Studies of Science* 14 (1984): 416.
[96] Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 34.

influence of social mores. At the core of this, is that, when bicycles began to emerge on the market, it was thought improper, if not sinful, for women to mount a bicycle, particularly the high-wheeled ordinary. The high-wheeled ordinary was comprised, in part, by a large, high wheel and was considered dangerous for women. (Given, they were expected to wear long, heavy skirts). Thus, at this point, at least two relevant social groups- broadly, male cyclists and female cyclists- thought of the artifact differently. Men largely were up for sport cycling and women largely wanted a stable machine that safely accommodated their clothing. *This demonstrates interpretive flexibility*.

Producers adapted numerous types and experimented with a variety of features in an attempt to stabilize a functional type, i.e. figure out what worked best according to the market. Bicycle technology was very much in flux and a variety of aspects- qualifying as artifacts unto their own- were being manipulated. The air tire, previously absent, was incorporated to help with excessive vibration. Seats (or "saddles" at the time) were repositioned for improved balance and safety. These kinds of adjustments, and many more, were made as a result of feedback from users. Different types of bicycles were appealing to different groups. In following the stages of the development process, Bijker and Pinch observed "growing and diminishing degrees of stabilization of the different artifacts"[97] along the way.

[97] Trevor J. Pinch and Wiebe E. Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 39.

Lawson's Bicyclette (with a low front-wheel and rear chain drive) and other versions of bicycles and tricycles emerged with some success. The safety ordinary was a lower-wheeled bicycle and proved to be the safest type and appealed most to the general public. Producers identified women and elderly men to be the social groups representative of the largest body of consumers for the product and targeted them, instead of sport cyclists. Thus, relevant social groups (designers, producers and users) aligned, and adopted the "safety bicycle." The phrase "safety bicycle" had a common meaning to heterogeneous actors. By the close of the century, the safety bicycle was the most prominent and the artifact was adopted. *This demonstrates closure*.

The artifact had stabilized. It was common knowledge that, "'safety bicycle' denoted a low-wheeled bicycle with rear-chain drive, diamond frame and air tyres."[98] These key features, from that point forward, were understood as the elements that make up a "bicycle." Interestingly, the safety bicycle- as it were in 1898- is basically the same in terms of how we define a "bicycle" today, over 100 years later. *This demonstrates technological momentum.*

The example of the bicycle demonstrates multi-directionality in the development of a technology. Meaning, it was not necessarily a linear path that drove the development of a certain type. There were various types, at multiple points in time, shaped by social influences. The point of closure was achieved when members of society no longer needed competing variations. An important aspect of this is that the different versions of

[98] Bijker and Pinch, "The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other."

the bicycle were viewed by the actors of the time as in competition. Closure was in part reached because other versions failed in the market.

Relevant social groups give meaning to artifacts and ultimately decide an artifact's adoption or "stabilization"[99] by society. In the case of the bicycle, it was generally young men who, at the time, were considered courageous and daring, and who rode the penny-farthing. *Types of technologies are altered and selected by different social groups.* The safety bicycle gained stabilization by the end of the era, not only because it was the most appealing to the largest number of relevant social groups, but specifically because it was constructed for- and marketed to- them.

While the requirement is that members of a social group share a meaning of an artifact, Bijker and Pinch recognize that this is not to parse out actors into dichotomies such as "consumers" and "producers." The male cyclists might be professionals, clerks, or schoolmasters. But, what tied them together as a relevant social group was that, in common, they rode the bicycle for sport.

Once groups are identified, more can be learned by identifying the problems associated with the artifact, as defined by the actors in the group. Bijker and Pinch map the relationship between relevant social groups and an artifact, in a general sense, to demonstrate the numerous groups that can attach meaning to the same artifact (See Figure 2). To decide what constitutes a problem in its context, a problem is identified as one when a relevant social group attaches meaning to the artifact in a way to interpret it as a problem. Bijker and Pinch argue that this point in the process is helpful in that it

[99] Ibid.

illuminates the kinds of conflicts that may exist around an artifact. In relation to the bicycle, there were different kinds of conflicts. There were technical conflicts, such as related to safety, and there were moral conflicts, such as having to do with women's attire when riding the bicycle.

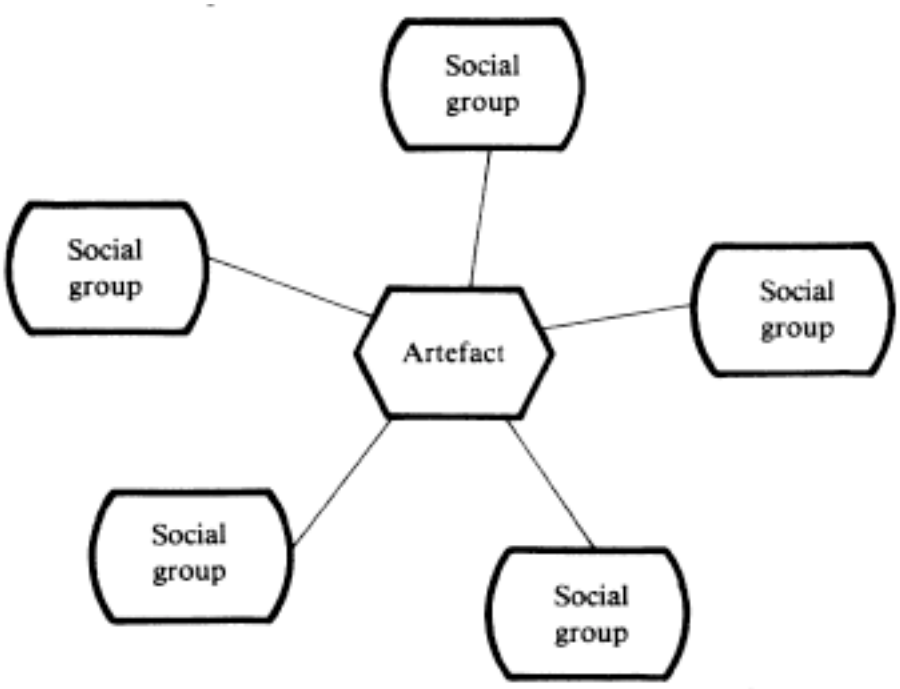


Figure 2: Relationship between an Artefact and Relevant Social Groups. Source: Bijker and Pinch, 1984.

Bijker and Pinch stress that their model is not a "mold," insinuating there may be some anticipated criticisms. They stress that the strength of the model lies in demonstrating opportunities to understand multi-directionality, interpretive flexibility, closure, and stabilization. Bijker, partnering with Ronald Kline, updated the methodology in 1996 to:

1. Recognize that it originally focused on the design stage of the technology. They revised this to add that, "the 'black box' of technology could be reopened as it was taken up by different social groups."[100]
2. Give greater attention to: "the social structure and power relationships within which the technological development takes place."[101]

In this precedent study, Bijker and Pinch not only lay out a methodological framework, introducing and defining numerous STS terms, but they demonstrate through the tangible example of one artifact, the bicycle, the first two stages of the methodology. At the time, the third stage was relatively unexplored. In the last several decades the methodology has been more fully explored, as well as critiqued and discussed, offering insights to its strengths and weaknesses.

Sergio Sismondo highlights that Bijker and Pinch's account of interpretive flexibility is important. They demonstrate that technologies can be understood as a compilation of features, none of which are essential. Following, "If technologies have no essential features, then they should not have systematic effects, and if they do not have systematic effects then they cannot determine structures of the social world."[102] Hughes rejects Bijker and Pinch's social constructivism as they described in their account of closure of the safety bicycle. Hughes believes that society is too broad a term employed by social constructivists.

---

[100] Ronald Kline and Trevor J. Pinch, "The Social Construction of Technology," in *The Social Shaping of Technology* (Philadelphia: Open University Press, 1999), 114.
[101] Ibid.
[102] Sergio Sismondo, "Two Questions Concerning Technology," in *An Introduction to Science and Technology Studies*, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 98.

Ruth Schwartz Cowan acknowledges that Bijker and Pinch offer some direction, but finds "Facts and Artefacts" limiting because the authors offer few suggestions for going forward. She distinguishes herself from other STS thinkers in that part of her effort includes considering consumers (as a relevant social group) at the center of the network. Cowan refers to this as the "consumption junction," and characterizes it to mean, "the place and the time at which the consumer makes choices between competing technologies, and try to ascertain how the network may have looked when viewed from the inside out."[103]

Cowan's position is that STS investigations focus on looking at networks and actors "from the outside in." From her vantage point, STS approaches are centered on, "questions with which the people embedded in the network may never have been concerned."[104] She claims that the diversity of relevant social groups involved in the construction of any given artifact is so vast that it is more complex than presented in traditional STS to equate an effective approach.

Cowan is most interested in "the variables that have governed the behavior of all those relevant social groups who influence consumers' choices."[105] Overall, she is proposing a consumer-focused analysis but one that satisfies existing social construction of technology approaches, such as Bijker and Pinch. Her approach does not so much address the initial stages, such as ones related to innovation, invention, and development,

---

[103] Ruth Schwartz Cowan, "The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 263.
[104] Ibid.
[105] Ibid.

but focuses on the end user or on consumer choice. She vies that looking at such holds insights for opening up the "black box" of the end stage.

Overall, the precedent study offers insights as to how artifacts are socially constructed. Socially constructed artifacts comprise technological systems. Because I am looking at mixed-use development as a technological system, next, I offer a bit more about Hughes' interpretation of a technological system, before explaining how I apply it all in the space of this paper.

Evolution and Momentum of Technological Systems

The components of a technological system are socially constructed artifacts in that, "they are invented and developed by systems builders and their associates."[106] Technological systems are complex. They are both "socially constructed and society-shaping."[107] According to Hughes, technological systems are comprised of physical and nonphysical components. Hughes qualifies what counts as a component by explaining: "If a component is removed from a system or if its characteristics change, the other artifacts in the system will alter characteristics accordingly."[108] In addition to obvious material components (such as electric lines in a power system or a motor in a car), they

---

[106] Thomas P. Hughes, "The Evolution of Large Technological Systems," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 52.
[107] Thomas P. Hughes, "The Evolution of Large Technological Systems," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 51.
[108] Thomas P. Hughes, "The Evolution of Large Technological Systems," in *The Social Construction of Technological Systems* (Cambridge, MA: Massachusetts Institute of Technology, 1987), 51.

are comprised of a variety of social components (such as social organizations or regulatory law).

Hughes' analysis of the Electric Bond and Share Company (EBASCO) is to demonstrate the complexity of a system too dynamic to be explained solely by determinism and constructivism. Hughes discusses EBASCO as an example of a mature, technological system. He highlights aspects of EBASCO pertaining to both the social and the technological. Hughes distinguishes EBASCO as a technological system as opposed to a sociotechnological system since the core of the system is based on technical aspects (it is for this reason that his critics say that ultimately he is determinist). Dually, he cites experts and institutions connected to the company (officially or unofficially), as well as, values and economy, as social influences.

Both physical and nonphysical artifacts function as components in a system that contribute to a common system goal. As a technological system evolves over time, it becomes more complex. This is to say that physical and nonphysical components become more complex. As a complex system matures, both the technical and social elements become more obdurate over time. There is a back and forth relationship of influence between the physical and nonphysical elements. Humans may create a technology, but, over time, a technology can gain influence over culture. In this sense, the system is more technical than it is social. Alternately, the bureaucracy of a technological system can become more prominent in the process and, at that point, the system is more social than it is technical. This type of observation and explanation of

technological systems is what characterizes technological momentum. It allows for a flexible compromise between social construction and technological determinism.

Hughes' interpretation of a technological system is consistent with looking at mixed-use development as a system. As this work will demonstrate, a mixed-use development is a material and social product, consisting of a complex array of inputs and function. Hughes plants seeds for also considering the evolution of mixed-use and for considering the level of compromise between social construction and technological determinism embedded in its parts and actors.

STS and Social Construction for this Research

STS provides a general constructivist lens through which to view the research process. Social construction of technology theory is a tool for analyzing the data and findings from the case studies. Cowan's interpretation of the social construction of technology approach inherently dovetails with my approach, given that mixed-use development has to do with a consumer-based market involving a wide variety of heterogeneous actors and relevant social groups. Hughes offers a view supportive of considering mixed-use development as technological system.

Given the three-stage methodology, the question now has to do with how I will use it as an analytical tool for social construction of mixed-use development as a technological system. First of all, I will mention, that, the 1996 update by Bijker and Kline holds useful implications for my purposes. It is fitting that they expanded the approach beyond the design stage. Given that I am looking at planning and development processes, the design stage and the implementation are both relevant subject matter.

Also, allowing for a focus on relationships of power within a social structure is a natural fit in analyzing the dynamic of mixed-use development- a public-private collaboration.

I will employ the first stage by identifying varying interpretations of any given technology. The idea is to analyze points of conflict that emerge within various interpretations and relate them to the design of technological artifacts. Showing that there is more than one interpretation is to establish interpretive flexibility. This can relate to the design stage or the implementation stage.

The second stage of the methodology is to then look for social constructs which hamper interpretive flexibility, i.e. identify how closure happens. I will keep in mind that a technological artifact that meets success, or is adopted, is not the only possible version of that technology. Closure is figuring out what happens in the process among actors that closes the possibility for variations. Interpretive flexibility, and hence design flexibility, diminish, and a particular approach or mechanism "sticks," or is adopted. Closure is not always permanent, as there can be temporary closure. The black box can be reopened. This can be dependent on the roles and interests of relevant social groups.

The third stage of the methodology is to determine the significance of what is revealed by the first two stages in the context of the wider socio-political climate. Determining what is significant may hold implications for the social construction of mixed-use development, in general, as well as for our current socio-political or economic state, just to name two.

RESEARCH METHODS

In this section, I shed light on the methods I employed in order to execute the research process. This includes information about how I approached the research process and how I collected and treated data.

Approach

In my approach, I exercised design flexibility, but the content has remained consistent. To explain, I mentioned in the introduction that my approach has shifted, to some degree, throughout this research endeavor. However, I also mentioned that the issues at the crux of my research have remained consistent. These issues largely have to do with how actors interpret reality, a significant theme in the STS literature.

In addition to STS constructivism, I used grounded theory research methods. Grounded theory is a methodology that allows for reciprocity between data collection and the formation of analysis and theory. As opposed to a method that begins with a hypothesis, and adheres to it throughout the work, grounded theory allows for emergent discoveries to inform the research process. Grounded theory begins with data collection and is consistent with constructivism. Data is coded in four stages: codes, concepts, categories, and theories.

In addition to a constructivist approach, I originally sought to arrive at an analysis of the issues by also employing Ervin Goffman's frame analysis. Frame analysis is a method or approach used for better understanding how a communication source defines and constructs perception and belief. Some of the elements of frame analysis remain in this work, particularly the idea of "frames of interpretation" and the idea of the

"alignment of frames." How an actor interprets the world around him/her can be referred to as an actor's "frame." Communication among heterogeneous actors can express frames that are in competition or in agreement. Actors or relevant social groups might reach agreement if frames align. One way frame alignment is defined is: "a conceptual bridge linking social psychological and resource mobilization views on movement participation."[109] While it is not in the scope of this paper to include more on frame analysis, as originally intended, these tools continue to be helpful in the work. They are very much in accordance with STS thinking, and there is some literature in existence where the concepts cross in an effective manner.

Attempting to incorporate frame analysis into this work proved to be too prescriptive and, I suspect, that, to some degree, I may have produced a "self-fulfilling prophecy" (validity threat). Additionally, as the thesis evolved, I learned that the original approach- involving two major methodologies- was too broad and too convoluted. That is to say, it was not proving to be specific enough. As I progressed in my work and analysis, I realized that the social construction of technology as a methodology was more than sufficient for formulating a clear and meaningful work. It proved to be a more natural fit because, from the inception of the work, a major research aim was to better understand both the nuances of the sociotechnological design process, as well as, larger implications. The social construction of technology approach does this exactly.

[109] David A. Snow et al., "Frame Alignment Processes, Micromobilization, and Movement Participation," *American Sociological Review* 51, no. August (1986): 464–481.

In the previous chapter I described the four major theories of STS. An additional item of note is that, in going forward, I do not assume any particular position regarding a theoretical stance based on the four theories of STS. Rather, I consider the implications of all of them based on what emerges to be relevant to the case studies. Thus, I exercise a hybridity in applying the STS theories. All the while, it is specifically a methodology of social construction of technology theory on which I most heavily rely.

Collaborative Method

In the proposal stages of my research, I had identified that I wanted to look at two cases of mixed-use development to comprise a comparative study. As mentioned in the introduction, it was an initial expectation that mixed-use development projects would offer rich and accessible insights by virtue of being public-private collaborations. With the aid of my advisor, I identified two local cases of mixed–use development projects, based on several factors. The projects were in proximity and were therefore geographically accessible. The projects were not completed, potentially offering hardy findings. The projects were advertised as featuring numerous aspects of sustainability technology.

At the time, part of the research aim was centered on analyzing actor collaboration in the context of mixed-use developments that hosted specific examples of innovative sustainability technologies. Dually, I was passionate at the time about the relationships between specific kinds of actors, such as architects and engineers. As I went forward in this vein, I conducted several preliminary interviews in regards to one project. However, the other project became inaccessible and I was at a standstill.

As luck and timing would have it, I was approached to get involved in a collaborative research project. The research included two comparative mixed-use case studies that had already been identified. Stakeholders in the project had already been organized, and access to informants and documents was supplied.

The research collaboration was mainly between the University of Texas at Austin School of Architecture and a local non-profit organization interested in regional issues related to sustainability planning. The non-profit organization had standing relationships with the actors involved in both projects and access to information. Additionally, they had already created some preliminary background reports on both developments.

I joined the team and was present for the first and all meetings involving students. There were four of us students on board. While the other student researchers focused on other aspects, I was focused on communication between actors and the processes associated planning and development. We were given the freedom to incorporate findings and data drawn from the research for our own personal graduate reports, while creating a collaborative report for the organization and the University.

Given that my background has to do with the facilitation of group processes, I was recruited to play the lead organizational role. This entailed organizing and managing our team approach, as well as, the processes among our team, the non-profit organization, the University, and the respondents. We employed a variety of research methods for data collection. I explain them next.

Data Collection

A variety of research methods were employed for the collection and interpretation of data. Below, I list and specifically explain each.

Interviews

We conducted interviews with heterogeneous actors associated with each of the mixed-use developments projects. We first conducted group interviews in the form of focus groups. We designed a protocol specifically for our group interview process. The document reflecting this has been included as Appendix A. As the document demonstrates, we had a prepared set of questions, but the process allowed for flexibility and iterative dialogue. This method proved very fruitful in that we gained a plethora of primary data based on information that actors electively offered. Dually, having a process structure with some constraints, proved fruitful in that it empowered the facilitator to move things along when a particular actor would dominate the discussion, or begin to repeat points at length, or when hot buttons were getting too hot. It also served as a neutral reference in that it removed responsibility of the actors to dictate the topics, and allowed for them to simply think and offer reflections.

Additionally, we conducted individual interviews. Some of these were follow-up interviews with actors present at the group interviews, and some of these were with new actors. Individual interviews were conducted both by telephone and in person. Some follow-up information was obtained via email.

Existing Documents

We, as a research team, collected data by referring to existing documents provided to us by the non-profit organization as well as by some of the respondents. This included existing reports, plans, press releases, and specifications guidelines. We also accessed information available on the internet and other media coverage, such as newspaper articles.

I personally conducted archival research by accessing documents in Alexander Architectural Archive at the University of Texas at Austin. I was having trouble locating any good resource about the history of planning and development in Texas, but, there, I found extensive historical documents provided by the Texas Chapter of the American Planning Association.

Participant Observation

Participant observation was part of conducting all interviews. Most significantly, we held the focus groups at the sites of the respective mixed-use development projects. As a group- of researchers and informants- we participated in site tours of the facilities. We learned about a variety of aspects about each project in a hands-on manner and really gained a feel for the projects. The tours also granted us additional opportunities to interact and discuss with project actors.

Participant observation also took place by way of sustained involvement with the non-profit organization. This included participation in meetings and events as well as continued contributions to a collaborative research study about the cases. We, the research team, presented updates and reports to the organization, which included the attendance of many of the actors involved in the projects. All of these physical settings

facilitated continued dialogue and understanding of the projects and the actors.

Triangulation

The methods described satisfy an approach conducive to a triangulation of methods. Meaning, it employs multiple approaches to the research question to be able to "zero in" on comparative data.[110] By using different approaches that do not contain the same biases or errors in methodology, one can draw stronger conclusions, with confidence, by honing in on information that emerges in every instance.[111] Utilizing multiple methods increases the ability to look for and discover common and competing themes.

Confidentiality

I struggled with the issue of confidentiality. I waffled between versions of this work that either named the mixed-use projects or did not. In the end, per the confidentiality stipulations as outlined in the IRB contract, I understand that I am bound to preserve the anonymity of the informants. Thus, this final thesis is framed by complete confidentiality of the actors and anonymity of the projects.

Data Analysis

Organization

First, I used HyperRESEARCH to go through and code all data. HyperRESEARCH is a qualitative analysis software tool that allows one to code and

[110] D.T. Campbell and D.W. Fiske, "Convergent and Discriminate Validation by the Multitrait-multimethod Matrix," *Psychological Bulletin* 56 (1959): 81.
[111] Royce A. Jr. Singleton and Bruce C. Straits, *Approaches to Social Research* (New York: Oxford University Press, 1999).

retrieve data for the purpose of identifying themes and building theory. Specifically, I imported the text transcriptions from all interviews as source files. Each interview file was saved in the program by name and can be recalled by selecting it. The program allows one to highlight data and label it in a panel alongside the text, which is the creation of codes.

I then went through every word and every sentence of all files and looked for the topic or theme of what was being said. I then assigned codes to sections of a data, based on the topics or themes being presented through the voice of the informant. While there is no way to completely escape subjectivity, the program facilitates consistency.

The program allows one to sort or filter data by case names and codes. It also creates reports based on selected methods. I ran the software's frequency report generation tool three times: one for all the codes associated with both cases and one for the codes associated with each of the two cases. The software generated reports, listing the code frequencies. This enabled me to see which codes emerged as the most prominent, collectively and per case. I exported the data into text files and then imported the text files into Microsoft Excel so that I could generate graphs. These graphs are included as Appendix B.

Findings and Analysis

I relied on the codes in the presentation of findings and analysis in two ways: 1) in the creation of categories, and 2) for the identification of points of conflict for the purpose of conducting analysis through the Bijker/ Pinch methodology.

1. Creation of categories

Following a four-step grounded theory approach, I relied on data for the creation of codes, concepts, categories, and theory. From the most frequent codes, I created concepts by lumping together the codes that had the most in common in terms of where they most overlapped in content. From the concepts, I then created categories by analyzing the relationships between the codes and giving them a thematic name. I used categories as a means to organize a detailed presentation of findings and analysis as well as ultimately help build theory. I thought it useful and viable to do this before conducting analysis having to do with the Bijker/Pinch methodology in order to see the data for what it was, before placing it into the specific lens of technology. Thus, the presentation of findings and analysis as organized by the categories allows for me, and the reader, to digest a great deal of data and understand the context better, before going into specifics. The analysis of the data in this section is geared toward revealing the nuances of the process by way of highlighting actor communication and frames of interpretation, thus setting the stage for analysis about social construction.

2. Identification of points of conflict

The first and second stages of the Bijker/ Pinch methodology have to do with locating and explaining interpretive flexibility and closure mechanisms. To get at this, one looks for places in the data where interpretations are diverse; where there is more than one interpretation. When this is the case, it implies that there is a conflict, or controversy, between norms and practices. Therefore, I relied on the data to locate points of conflict. I had already coded pieces of the data as

"Challenge or conflict." Thus, I went back to those codes and mined the ones that offered viability in discussing interpretive flexibility as it relates to the development of mixed-use technology.

I explain this a bit further in conjunction with the presentation of findings and analysis in Chapter 4. I do this, because as will become evident, it is much easier to understand the explanation when it is placed within the discussion of the findings.

Chapter 3: Relevant Literature

In this chapter, it is necessary to visit a number of relevant aspects this work aspires to connect. My research approach involves taking into account fundamental ideas and recurrent themes that, in the end, have built the framework within which modern actors are working. While a main goal is to expose the nuances of the social processes associated with mixed-use development, this is executed while keeping in mind the larger socio-political milieu in which they are embedded.

As discussed in the previous chapter, science and technology studies (STS) theory is the lens through which I primarily formulate my methodology, analysis, and conclusions. In particular, I have explained social construction of technology theory. In this chapter, in addition to visiting more of the STS literature, I survey pertinent aspects of the following literatures: architecture, planning, and mixed-use development.

STS LITERATURE ADDRESSING TECHNOLOGY, SOCIETY, DEMOCRACY

The case studies central to this research represent an intersection of technology, society, and democracy. The mixed-use development projects are public-private collaborations and heterogeneous actors often represent conflicting and corresponding wills and agendas of relevant social groups. In this section, I provide a survey of STS literature that illuminates the epistemological and philosophical foundations of a longstanding discourse relevant to the fields and to this thesis. This helps get at the overarching philosophies that color the breadth of my stance in approaching the work, and helps create a base for understanding the encompassing socio-political implications over time.

Public Disenfranchisement

Andrew Feenberg argues that leaders who are equipped with powerful systems of technology have the most control over our society. Our system of democracy is not run by our government, but rather by the masters of technical systems.[112] Feenberg reminds us that Marx warned us that public disenfranchisement was eminent in the absence of a democratic industrialization. Feenberg acknowledges that technology is a major source of power, but that it is a misconceived hegemony that leads us to think we, the people, can not be in control of it.

We are led to believe that, "modern technology is incompatible with workplace democracy."[113] That is what the powers-at-be want us to believe. Feenberg contends that society could have more of a say. Langdon Winner offers a clear and detailed account of what it looks like to achieve workplace democracy in modern technological times.

Modern Workplace Democracy

Langdon Winner recognizes that there is a lack of structure supportive of social consensus or input in regards to new technology in its various forms. Technologies are hugely impactful on society, yet emerge with "no clearly defined channels."[114] Issues of morality, values, and philosophy are essentially bypassed, creating a void where responsibility and consequences should be addressed.

---

[112] Andrew Feenberg, "Subversive Rationalization: Technology, Power and Democracy," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 3.
[113] Ibid.
[114] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 65.

As a technocratic debate ensues, and philosophers contemplate the danger of a lack of accountability between ethics and technology, *what good is it?* As new technologies are created and "rolled out,"[115] they may or may not entail ethical consideration that may or may not be observed. To add, as philosophers of technology develop arguments in the favor of citizenry, *who is really listening?* There is an assumption in the commonly cited "we" that there *is* a "we" with shared values, a society with shared values.

Winner draws attention to the fact that scholars in general are detached from the technological decision-making process. He says it is time to identify the character of the actors who are involved in "crucial, world-altering judgments."[116] The forum for doing so in modern society is politics. In the Western world, there is not much available for how citizens may be engaged in the execution of technological development.

Winner observes that an ancient view, on behalf of early philosophers such as Aristotle and Plato, included a healthy dose of skepticism and caution in regards to a move towards *techne*. *Techne*, then, was thought of as, "the realm of the practical arts,"[117] and can be considered the philosophical predecessor to technology. Plato considered techne inferior and dangerous, claiming, "true knowledge…is not that of worldly, mutable, material things, but knowledge of the realm of unchanging ideas."[118]

---

[115] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 66.
[116] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 67.
[117] Winner, "Citizen Virtues in a Technological Order."
[118] Ibid.

Aristotle explored the role of the citizen in relation to politics and technology. He bases his thinking on a position that humans are innately political. He says we are, "naturally suited to live in a polis or city-state."[119] Aristotle conducted a research study inclusive of 150 city-states of his time and concluded, "The polis is the highest form of human organization."[120] The city-state is conducive of a public life made up of free and equal people. The city-state is one that manifests the concerns of the citizenry. Active community engagement reaches the best for all.

As for the role of individual citizens, Aristotle maintained that citizens assumed a unique position: they were neither the rulers nor the ruled. Citizens should be able to "govern like a free man and obey like a free man."[121] A citizenry that is fluent in both spheres would encourage an ethical checks-and-balances, making sure common values were built into government. A central value of the citizen was a cautionary attitude towards the practical arts, notwithstanding too close a relationship with the products of the practical arts; to be yoked with the material is to surrender one's freedom.

As we humans moved into modern times, ancient streams of thought replete with caution and pessimism in the realm of politics concerning technology gave way to an attitude of "unbridled optimism."[122] Traditional views of science and technology gave way to the Baconian Method. Bacon, a huge advocate of his own program, set forth a new direction in which knowledge and practice are understood. He criticized the ancient

---

[119] Winner, "Citizen Virtues in a Technological Order."
[120] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 68.
[121] Ibid.
[122] Ibid.

traditions in their core sense, arguing that they have no material value, that they are "barren of works."[123] The scientific method and scientists were hailed as superior and worthy of going forth in, "the conquest of nature and expansion of human powers."[124]

Winner points out that this stance was tied to a cultural shift that was taking place. The new thinking was one tied to economy and self-interest. Whereas in previous points in time there was caution and development was more closely linked with a perception of governed control, now there was a sense of rebellion against interests of the state in favor of the individual.

Not long after Bacon, John Locke affirmed such thinking, that humans dominate nature in the interest of securing property. To ensure this, "men" will choose government over nature to protect their property rights. And, as Winner points out, if a government fails to do so, the people might revolt. Within this "possessive individualism"[125] lies a contradictory dichotomy. On one hand, a citizenry dependent on the government to protect their material interests can help create a stable, law-abiding society. But, on the other, government loses its civic and moral value, for it is trumped by self-interest.

Winner pleads that this split between politics and technology has manifested itself in contemporary American society as a vacuum void of effective communication between them. While the role of the citizen in the politicizing of technology has long been idealized and theorized, it turns out there are no channels for intersection. This result is

---

[123] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 70.
[124] Ibid.
[125] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 71.

often blamed on modern democracy, and ideas, such as "participatory democracy,"[126] are emerging in response.

This is evidenced by the emergence of public interests groups that attempt to exercise some kind of voice, influence, or pressure. But, as Winner puts it, "the very existence of these groups points to the lack of any clear, substantive meaning for the term public."[127] A lack of agreement as to what or who is representative of the public, and the related lack of an organized system which could support or foster public representation, results in two major characteristics of the modern technological debate, according to Winner. The first characteristic is: "futile rituals of expert advice."[128] The other is: "interminable disagreements about which choices are morally justified."[129] Given these aspects, the possibility for public consensus concerning politics and technology seems nonexistent.

Winner summarizes his thoughts about the contemporary United States: "Politics simply does not provide appropriate roles and institutions in which the goal of defining the common good in technology policy is a legitimate project."[130] However, he also pushes the boundaries of his framework to suggest that there is something technologically large taking place causing a fundamental change in the way people are connected to technology. He optimistically observes that the influence of ordinary people is seeping into technologies by way of an emerging interdependence between people and

[126] Winner, "Citizen Virtues in a Technological Order."
[127] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 75.
[128] Ibid.
[129] Ibid.
[130] Ibid.

technology, effectively breaking the contract with ancient or modern technological philosophy. To note, he says, "To an increasing extent, the qualities of technical artifacts reflect the possibilities of human living, what human beings are and aspire to be."[131]

To look outside of the United States, there are some examples in Scandinavia that explore a practical approach that seeks to bridge both democratic and technological decision-making processes, keeping in mind a contemporary context. Of particular significance and interest are "co-determination" laws passed by the Swedish government in the 1970's that provide a channel for all matters of the workplace to be negotiated. "Co-determination" laws were created to directly address the effects of computerization. The laws were put into place to prevent both a loss of jobs and a loss of skills on behalf of the workers. A research institute, the Center of Working Life, is a "prototype of this variety of technological citizenship"[132] that emerged as a result of legal encouragement. Teams embarked into the workplace to explore the relationship between technology and team decision-making.

One case of note is the UTOPIA project in the setting of the Swedish newspaper industry. Managers, workers, and computer scientists came together to, "design a new system of computerized graphics used in newspaper layout and typesetting."[133] A hands-on design workshop followed and, in addition to the development of some new resources, a pilot system was implemented. The pilot system, "offers a pattern of hardware,

---

[131] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 78.
[132] Ibid.
[133] Ibid.

software, and human relationship very different from what would have been produced by managers and engineers alone."[134] Very telling about the philosophy embedded in the deliberations of the project is that, as Winner reports, "project members considered but rejected the pre-packed graphics programs promoted by vendors from the United States because they reflected an "anti-democratic and de-skilling approach."[135] (!)

Something novel about the project was that, "technical requirements were derived from the principle that the equipment should serve as tools for skilled work and for production of good use quality products."[136] Thus, it appears as though cruxes of the age-old philosophical debate have merged in an optimistic manner: the construction of a technology based on values in conjunction with a channel to include and protect society and the individual. An additional crux seems to have been addressed in this case as well: the role of expert knowledge. In deliberations, the knowledge of both the experts and the workers carried equal weight. Expertise was incorporated in a way that helped facilitate a democratic process.

An important piece of the project was figuring out a way for people of different backgrounds to effectively communicate with one other. A "project language game" was developed in which, "all the participants from very different vocations, professions and social backgrounds could speak to each other."[137] The project operated with a level of optimism and inclusion that heterogeneous actors with conflicting issues could come

---

[134] Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 79.
[135] Ibid.
[136] Ibid.
[137] Ibid.

together in the interest of acting with a common goal. While the project seems to have achieved success in these terms, Winner points out that it is, of course, more complicated than that, as further negotiations may still take place in the political realm of, "those whose interests will be affected by the change."[138]

Nonetheless, the Scandinavian approach pushes one to contemplate practical applications of technopolitical practices. There is a need to further understand the nuances of technological project practices. A deeper understanding of the reality of conditions and negotiations that takes place can help make a space for the role of citizen virtues in the social construction of the technical. It would behoove us to develop channels to make this so, and in a proactive manner so as to avoid attempting to address issues that come up when the construction of technology has already begun.

Design by Society

Edward Woodhouse and Jason W. Patton suggest a "design by society" framework might be helpful as a conceptual approach to understand how to arrive at better solutions regarding equitable design processes. Woodhouse and Patton aspire to broaden the body of work exploring a particular challenge associated with the design world: How to arrive at democratic processes that engage both design professionals and the public. They echo the work of Nigel Whiteley's *Design for Society* and an array of STS thinkers. Woodhouse and Patton argue that an STS approach can shed light on how to make design processes more inclusive to non-professionals and may result in technological products that are more equitable for society than those we see now.

---

[138] Ibid.

Woodhouse and Patton illuminate that the actors involved in design processes are often far more diverse than meets the eye. Specifically, they distinguish between "proximate designers" and those who might fall under a category called "design by society." Proximate refers to those designers who have expertise and direct control over design. Proximate designers might include engineers or architects. Design by society has to do with three aspects associated with the design of, what they call, a "technological society." The three aspects have to do with: (1) unmasking the complexity of the design process and the great diversity of actors engaged in it, (2) understanding the social norms and values built in and represented by the products of design, and (3) exploring how to apply the level of expertise and attention, as exercised by proximate designers, to the design process in a holistic way that advances equity and public good.[139]

Social Movements and Technology

David J. Hess presents social movements in the context of technology. He explores movements as "alternative pathways" in science and industry and their potential to bring social change. Social groups have played roles in movements that affect technological change. New technological products embody alternative knowledge that had to be developed by relevant groups. From Hess' point of view, within this, everything is about compromises between groups. The idea of alternative pathways means to include the idea of "contentious politics."[140] He asks, "How can scientists,

[139] Edward Woodhouse and Jason W. Patton, "Design by Society: Science and Technology Studies and the Social Shaping of Design," *Design Issues* 20, no. 3 (Summer 2004): 1–12.
[140] David J. Hess, "Introduction," in *Alternative Pathways in Science and Industry*, Urban and Industrial Environments 30 (Cambridge, Massachusetts and London, England: The MIT Press, 2007), 4.

designers, and entrepreneurs be viewed as simultaneously epistemic, economic, and political actors."[141]

Hess looks at social movements in an innovative way. Meaning, that instead of discussing social movements in terms that have already been identified, or in ways that have previously assigned names to movements ("such as the labor movement"), his focus is on, "the generative influence of social-movement action and related action on scientific, technological, and industrial innovation."[142] Hess builds on Andrew Jamison's work, where the two have in common a view that, "social movements have generative capacity."[143] Alternative pathways as social movements can oppose types of technologies and they can also nurture the creation and development of new ones.

Hess offers five fields of action under which he organizes the way actors approach movements. They are: food and agriculture; energy; waste and manufacturing; infrastructure; and finance. In the field of infrastructure, Hess identifies industrial opposition movements as having to do with highways and sprawl, and the technology- and product-oriented movements as having to do with New Urbanism, Smart Growth, and green building. The two connect in social action related to an anti-highway movement. Hess outlines that these movements gained momentum after World War II. From Hess' view, one factor was that American opinions and attitudes were influenced

---

[141] David J. Hess, "Introduction," in *Alternative Pathways in Science and Industry*, Urban and Industrial Environments 30 (Cambridge, Massachusetts and London, England: The MIT Press, 2007), 2.
[142] Hess, "Introduction."
[143] David J. Hess, "The Transformation of Technological Fields," in *Alternative Pathways in Science and Industry*, Urban and Industrial Environments 30 (Cambridge, Massachusetts and London, England: The MIT Press, 2007), 85.

by witnessing German expressway technologies. His point to be highlighted is that any highway technology could have been adopted- that there were choices- but political groups *made* the choice for an expansive highway system.

In an era of globalization and market-oriented government policies, social movements have helped to politicize consumption, and, in the process, to develop new markets and industries. Social movements point to a design innovation that can be effective in connecting industry and community. Hess sees that late-twentieth-century urban reform efforts share no single technology- and product-oriented movement, but, that within the industrial opposition movement of infrastructure, reform movements related to planning and architecture have the potential to successfully enact alternative pathways.

TWO WAYS TO UNDERSTAND ARCHITECTURE

There are two aspects of architecture most important to discuss in relation to this work. One has to do with how architecture is understood as a technology. The other has to do with how architecture is understood as a typology. Below, I discuss each in turn.

Architecture as a Technology

There are several ways to arrive at the conclusion that architecture is but one form of technology. Following a most basic logic is from the perspective of the anthropologist. Technology, as characterized by anthropologists, can be the simple application of a function to any "tool" such as a stone perfect for digging. A material object of technology that we humans invent, or a technological artifact, can be as simple as a door hinge or as complex as a computer. Every artifact, regardless of its level of sophistication, is informed by and, in fact, a product of, human processes. Following this thinking, architecture is a form of technology.

Some explain architectural technology as applied science. This is rooted in the assumption that science and technology are inherently linked. In the earliest of ages, science, mathematics, architecture, and technology, were philosophically linked in the realm of the practical arts. To date, engineers and architects commonly view construction as applied science and mathematics. Architects and engineers regularly work together to devise architectural projects such as bridges and dams. There are a number of interdisciplinary fields that bind science and technology with the end product of architecture. For example, physicists and architects collaborate in acoustical

architecture. According to Thomas F. Gieryn, architecture represents a built-up science, as well as a technology, through which one can walk.[144]

Some debate the role of technology as an indicator of American progress. As "the pace of technological change quickened"[145] in the early nineteenth century, the availability of materials, such as iron and steel, increased. The application of these materials, including the architectural structures made from them, fell into the category of advancements in technology.

The late stage of the Industrial Age has become known as a "Machine Age," categorized by a social obsession with technology and mechanization. Patrick Geddes and Lewis Mumford considered mechanization insofar as it had to do with every facet of society- material and social. Architecture, planning, and all else, fell under the category of technology. In 1960, *Theory and Design in the First Machine Age* was published, and has been a staple in architectural education ever since.

Some people view architecture as technology in that it embodies the ability to facilitate human activity and behavior. It allows us to achieve function(s). A dwelling- of any level of sophistication- is a structure that houses the tools and other technologies for human living and doing. A research laboratory hosts scientific work and the

[144] Thomas F. Gieryn, "What Buildings Do," *Theory and Society* 31, no. 1 (February 2002): 35–74.
[145] Smith, "Technological Determinism in American Culture."

equipment for doing so. As Sergio Sismondo states, "Architecture provides a good example in which technologies have effects and embody social structure."[146]

In Hughes' model, architecture is included as part of a technological system. Hughes has presented the Electric Bond and Share Company (EBASCO) as an example of a mature, technological system.[147] Hughes' analysis is to demonstrate the complexity of a system. He includes experts and institutions connected to the company- officially or unofficially- as well as values and economy as inherent influences not to be ignored in analysis. The institutions and workings of a technological system would include the architecture that house them. Some see all components of the built environment- that comprise a city- as technologies, which is to include architecture. Eduardo Aibar and Wiebe E. Bijker see a city as a technological artifact.[148]

In sum, architecture has been viewed as a form of technology from the angle of multiple disciplines for a number of years. Anthropologists, scientists, engineers, theorists, and philosophers seem to find common ground in at least this basic assumption. Architecture can be viewed as the application of a variety of fields, such as science, mathematics, or physics. Throughout the remaining discussion in this chapter, the position that architecture is a form of technology will continue to be supported.

---

146 Sergio Sismondo, "Two Questions Concerning Technology," in An Introduction to Science and Technology Studies, 2nd ed. (West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010), 103.
147 Thomas P. Hughes, "Technological Momentum," in *Does Technology Drive History: The Dilemma of Technological Determinism* (Cambridge, MA: MIT Press, 1994).
148 Eduardo Aibar and Wiebe E. Bijker, "Constructing a City: The Cerda Plan for the Extension of Barcelona," *Science, Technology and Human Values* 22, no. 1 (1997): 3–30.

Architecture as a Typology

An architectural typology refers to the establishment of a building type by way of a building structure, or group of structures, sharing common characteristics. These characteristics can relate to design, materials, location, or use. An architectural typology can be recognized by a noticeable pattern that has been set over time. In practice, architects tend to rely on the concept of a typology, or "pattern language," in discussing design schemes.

One author defines "building typology" as "a lexicon of different types of buildings based on their formal characteristics."[149] Buildings can relate to their surrounding environment by being associated typologically. For example, as I mentioned in the introduction, a suburban typology is in contrast to a mixed-use typology (See Illustrations 1-2)**.** The idea of an architectural typology can be used to discuss the evolution of one type of building or a more extensive design scheme.

Illustration 1: Example of a Suburban Typology. Source: Sean O'Flaherty, 2006.

[149] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 90.

Illustration 2: Example of a Mixed-use Typology. Source: Creative Commons, 2007.

Particularly, typologies are employed in characterizing and differentiating between different niches within the urban design scheme. Many times, but not always, these typologies are named in association to the land use in which the niche has been zoned. For instance, in one urban design studio report resulting from a partnership between a university and a city planning department, a series of typologies and their descriptions are presented. Some of the typologies include: "light industrial street typology" and "residential street typology." Among the descriptive aspects are setbacks, entry conditions, and façade details.[150]

In the disciplines of architecture and planning, it has become common to discuss typologies associated with "suburbia" or "big box." For example, one MIT student recently observed:

---

[150] City of Seattle Department of Planning & Development and University of Washington Department of Urban Design & Planning, *Studio Report- Urban Form in South Lake Union* (Seattle, Washington, Fall 2005), www.seattle.gov/.../UW_SLU_Studio_Report_fall05_Draft_LatestReleased_DPDP_020376.pdf.

> In modern communities the commercial centers are arterial roads with big box stores and strip malls, a typology that has evolved as the American landscape has become oriented around automobiles, requiring wider roads, larger parking lots, and a generally larger scale of development.[151]

Another student offers an insight that probes deeper issues, pointing to underlying conflicts among relevant social groups:

> I think developing a studio project around the big box typology is a very hard task to attack. The ideas, concepts, ambitions and even egos that historically drive an educational studio project seem to be in direct conflict with those that drive developers to build big boxes.[152]

David Walters identifies typologies of planning. He beds them in observations about the relationship between the professions of planning and architecture. Specifically, it is his position that the two have significantly grown apart since World War II. One manifestation of this is illustrated by his observation that, "To an architect, a plan is a drawing; to a planner, it is a written document."[153]

According to Walters, architects and planners have been re-aligning under the leadership of New Urbanism since roughly the turn of the 21st century. Within this, planning processes are evolving, and the role of urban design practices is changing. Walters claims that this suggests that social groups relevant to the disciplines of planning and architecture are returning to American roots in physical design.

---

[151] Dominick Tribone, "Auto: Re-Oriented, Reconciling the Main Street Mentalities with Modern American Growth Patterns," *Cargocollective.com*, 2011, http://cargocollective.com/mit/Auto-Re-Oriented.
[152] hsolie, "Studio Big Box: The Finale (fall 2011 Recap)," *Archinect*, 2011, http://archinect.com/blog/article/34596105/studio-big-box-the-finale-fall-2011-recap.
[153] David R. Walters, "Introduction," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 19.

Walters argues that histories of theory and practice can be summarized into typologies of planning. It is his view that physical design-based planning can be consistently understood as, "part of a trilogy comprising economics, physical design and policy."[154] Under this framework, he offers six typologies of planning he characterizes as common to the U.S. and the U.K. An STS lens might infer that artifacts of physical planning are socially constructed by way of relevant social groups associated with the three areas he designates as comprising the "trilogy."

Walters describes physical design-based planning typologies in a way that includes the social influences embedded in them. Nikolaus Pevsner details the kinds of nuances evident in the relationship between design, use, and behavior, embedded in the evolution of building types. According to Pevsner, "every building creates associations in the mind of the beholder, whether the architect wants it or not."[155] He notes that some architects want it. In this concise statement, Pevsner makes two observations about relevant social groups: a) architects as a relevant social group may not always possess common intentions, and b) every onlooker assigns an individual meaning.

Building Types

All architecture tells a story. It represents a history of choices in terms of both style and function. This is what Nikolaus Pevsner found to be so intriguing about building types. Pevsner compiled a treatise of Western architecture in the 1970's book, *A*

---

[154] David R. Walters, "The Evolution of the Planning Process and the Changing Role of Urban Design," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 31.
[155] Nikolaus Pevsner, "Conclusion," in *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976), 293.

History of Types. Pevsner outlined a history of many building types and described the intersection of use and design.

Pevsner made some important observations relevant to the intersection of planning and architecture. For example, architecture is purposed for society. It meets a function within the context of the societal needs of a given time. The demands of society, of a given era, influence the expectation of how the architecture will facilitate and function.

Pevsner refers to late-nineteenth century American architect, Henry van Brundt, who said that architects experience a change in expectations in the course of their career. Architects are "called upon to erect buildings for every conceivable purpose, most of them adapted to requirements which have never before arisen in history."[156] Building types change over time in a variety of ways such as in terms of scale or conditions suited for public services. Interestingly, for the architect, the act of planning practically, compromises architectural freedom. This is made vivid by van Brundt's statement:

> Out of [the] eminently practical considerations of planning must grow elevations, of which the essential character, if they are honestly composed, can have no precedent in architectural history.[157]

Pevsner introduces the work by making mention of the fact that typologies diversified a great deal throughout the 19th century. Previously, several dominant types of architecture existed- such as castles, palaces and churches- whereas the 1800's brought

---

[156] Tribone, "Auto: Re-Oriented, Reconciling the Main Street Mentalities with Modern American Growth Patterns."
[157] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).

on "a multitude of building types."[158] Changes in architectural typology can be functional and/or stylistic. For example, Pevsner writes that the evolution of town halls- medieval times to the eighteenth century- represent functional developments, whereas eighteenth century and thereafter represent stylistic development.[159]

Pevsner demonstrates, that, regardless of the cause of a change, i.e. function or design, an architectural element may endure and be present in future iterations of the typology. Dually, design styles and typologies many times live well beyond the creation of their original purpose or intention, or the discourse represented. In what follows, I discuss a few of the typologies discussed in Pevsner's work. The following examples help shed light on the societal intricacies related to the evolution of building types.

Hospitals are interesting examples of building types where the relationship between design and use is crucial. In the 18th and 19th centuries, hospitals were not necessarily being built in a way that coincided with a dominant view on health, sanitation, or healing. A variety of writers at the time made a case for this. At last, a newer type, referred to as a "pavilion plan"[160] as evidenced by Paris' Hospital Lariboisiere, catered to better conditions. It was found that by constructing the facility with three separate wards along a long court in the center- with the administration at one end and the chapel at the other- produced the highest healing rates. It was praised by experts of the time to be a kind of revolutionary relief.

---

[158] Ibid.
[159] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).
[160] Nikolaus Pevsner, "Hospitals," in *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).

An interesting story involves Florence Nightingale, who was among the most experienced and respected caregivers in the world at the time. As for evidence of her ability to whip hospital conditions into shape, she was able to bring the death rate in one hospital down from 42% to 2%. A notable thing took place, in that, at the center of her campaign to improve hospitals, she advocated for the pavilion scheme (See Illustrations 3-4), which, at this point, was approved by many thinkers. Specifically, a new military hospital had begun construction in 1856, and the style worked against the proven logic at the time for what was considered conducive to health and sanitary conditions. Namely, it was utilitarian Italianate and the interior spaces were structured in such a way that it created a concentration of beds without much ventilation. This was one of the major issues Nightingale and others had been consistently pointing out.[161]

Nightingale appealed to the British government concerning the plans. As Pevsner writes, she "wanted it demolished, as far as it had been built, and replaced by a building on the Lariboisiere scheme."[162] Reportedly, Nightingale was able to convince Lord Palmertson to agree that the scheme sought to make an impressive display more than achieve sanitary conditions. Alas, construction continued and the Royal Victoria Military Hospital was completed in Italianate style in 1863.

---

[161] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).
[162] Ibid.

Illustration 3: Royal Victoria Military Hospital. An architecture of huge proportions, the design did not make provisions for isolated units or adequate access to fresh air. Source: Queen Alexandra's Royal Army Nursing Corps (QARANC), 2002.

Illustration 4: Lariboisière Hospital. The pavilion scheme provided a decreased concentration of rooms and was designed for ventilation. Source: Creative Commons, 2009.

Internationally, most hospitals of the nineteenth century are Italianate. In moving towards the twentieth century, the pavilion scheme came to indicate a progressive authority or progressive architect. However, also in moving towards the twentieth century, hospitals became more specialized and there were advances in medicine.

Patients in need of medical attention for physical ailments were sorted out from those considered insane, and were increasingly placed in asylums, which came to represent an architectural trend unto its own. Embodied in the new asylum typology was a shift in society's values where relevant social groups successfully advocated for the segregation of patients based on specialized services.

Advances in science of medicine brought the debate between Italianate or pavilion style hospitals to closure. The debate hinged on practices to the best knowledge of the time. Stale air was believed to be "the chief enemy"[163] of the sick, and there was a concern for general cleanliness. But Louis Pasteur's work on bacteria and the transmission of diseases, and Joseph Lister's work on antiseptics, "changed medicine and therefore hospital design."[164] Thus, "If bacteriology was right, then the need for pavilions ceased."[165] This represents a direct connection between science and architecture, where, as a typology, architecture is influenced directly by developments in society (or "science").

Another telling typology is that of theatres. The history of theatres as building types demonstrates a variety of aspects pertinent to architecture and society. First, they tell the story of a pattern that cements into a type, showing that types can gain momentum over time. Second, they demonstrate that there can be a lull in architectural changes of a

[163] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).
[164] Ibid.
[165] Ibid.

type, lest interior changes associated with technological advancements. Third, they demonstrate a reciprocal influence between architecture and social hierarchy.

The Italian Renaissance brought forth two major changes to theatres. First of all, the location of the theatre went from the being on the street within the setting of the marketplace to being situated in the context of the palace. Secondly, the theatre went from having multiple stages to one. The former setting of the marketplace was conducive to capturing the passersby, whereas the latter meant for a seated and captive audience.[166] This change indicates societal motivation for doing so. With the Renaissance, appreciation for art and theatre greatly increased. This influenced the formalization of a built setting allowing for increased attention on the part of theatregoers.

Over time, a new theatre setting was experimented with and eventually a type stabilized. At first, it possessed many features common to medieval expectations. Literature played a part in sparking a Roman revival, architecturally. In STS terms, this can be seen as opening the "black box." The single stage and the fixed auditorium were considered ancient Roman arrangements.[167]

It is interesting how different elements evolve to become a component of a typology. For example, in some of the earlier auditoria, there were galleries off to the sides of the stage where people could watch either by standing or walking around and socializing. This is reminiscent of the medieval marketplace setting where onlookers were ambulatory. Over time, "the greatest change in the elevation of the auditoria was

---

[166] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).
[167] Ibid.

the introduction of boxes instead of galleries."[168] However, the boxes were not a completely new feature. It is just that they had not been selected as an option for a hundred years or so. The boxes in this iteration were a reflection of the period's economy and social hierarchy. The box seats were purchased by those who could afford them, much like what happens at a sporting stadium today.

Some thought the boxes were bad for seeing and hearing, as well as conducive to immoral behavior. They were not conducive to serious art appreciation. In regards to theatre, this attitude reflects a transition in social attitudes and norms, which were in flux. It was becoming more of a social event than a formal activity. As the social climate evolved, so did the architecture (See Illustration 5).

These features (the single stage, a seated auditorium, and boxes instead of galleries), along with others (such as the shape of the auditorium- a "truncated ellipse"[169]), cemented the Baroque typology. The typology had stabilized. Whereas the iterations of the stage and auditorium had been played with and tweaked over time, the new auditorium shape was considered the first of its kind. The Baroque-style theatre dominated as a typology for several hundred years. It had gained momentum. However, as technological advancements were made in the realm of stage machinery, there were changes in the details of the interior architecture. The "new Italian type"[170] of theatre building took over Europe, which is indicative of the regional influence a typology can

---

[168] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).
[169] Ibid.
[170] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).

exercise. Overall, the typology had stabilized by favor of relevant social groups who had come to know and expect a certain experience (and were willing to pay for it).

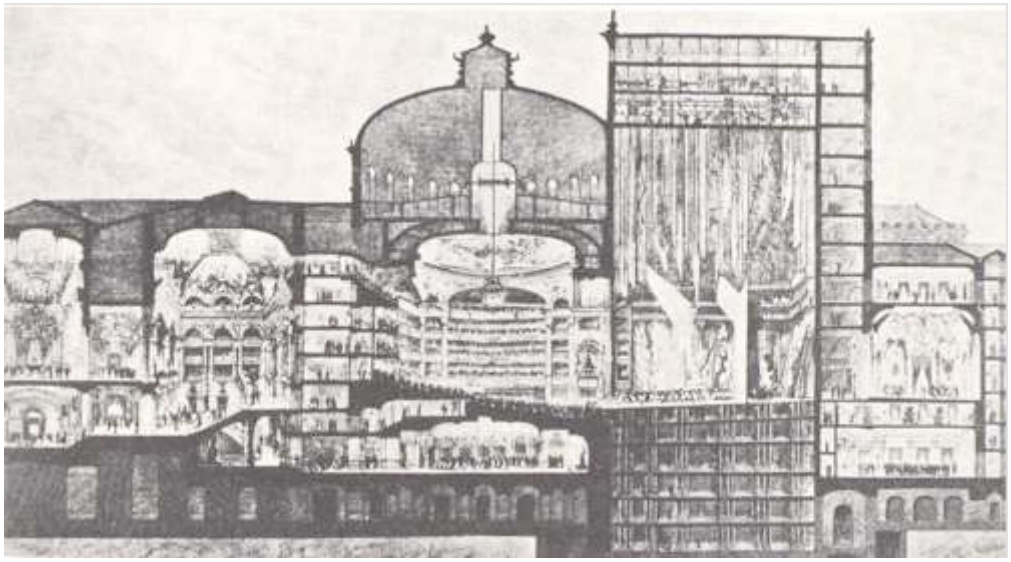


Illustration 5: Longitudinal Section of the Paris Opera. Spaces for gathering and socializing are prioritized. Source: Charles Garnier, 1861-75, Leipziger Illustrierte Zeitung, 1875.

Hotels of the late eighteenth century in a variety of European nations began to include theatres as main attractions. This differentiated hotels, as a type, from inns, as a type. Inns supplied rooms only, and possibly access to food or drink. Hotels of this era grew into something of a mixed-use sensation, with the larger ones incorporating gardens, plazas, shops, dining rooms, coffee rooms, parlors, bars, and their own workforces, in addition to a theatre. One thought to be the most extensive, in Dessin, encountered financial trouble and was aided by the government because of the "splendour

of the establishment."[171] Records indicate that guests found the hotel environment, with its many amenities, very exciting and enjoyable. Some remarked that it was like a small town unto itself.[172] Interestingly, this means to suggest that, more than two hundred years ago, relevant social groups appreciated a mixing of uses and amenities and valued it as something more than a sum of its parts.

Overall, Pevsner's treatise of building types offers several significant findings. He demonstrates that selected aspects of a design type, or a general typology at-large, can many times live on and continue to emanate in a variety of ways in other architectural examples in years to come. This can begin in a regional context and lead to widespread adoption. This supports the idea of typological momentum.

Also, regardless of whether the design feature was originally born out of style or function, it does not mean that it will reemerge with the same interpretation. For example, incorporating a certain design style can be an attempt to create a material touchstone to an era of the past or could be included as an ornamental design feature as opposed to a functional one. This suggests that the idea of interpretive flexibility can manifest throughout the evolution of a technological artifact.

In both of these observations, and throughout Pevsner's treatise, it becomes clear that relevant social groups- representative of changing cultural expectations- influence building types. Architectural types are influenced in a manner consistent to technological

---

[171] Nikolaus Pevsner, *A History of Building Types*, vol. 19, 24 vols., Bollingen Series 35 (Princeton, NJ: Princeton University Press, 1976).
[172] Ibid.

types, as presented by Bijker and Pinch. In sum, architectural types are socially constructed and can gain momentum.

PLANNING MOVEMENTS, IDEAL TYPES

In this section, I offer a background that surveys the foundational content related to the kinds of actors, groups, and movements, relevant to this work. The field of planning is often cited as a response to the social ills, or "wicked problems," that came with congested, industrialized cities. Within this, there were planners, architects, sociologists, and others, proposing visions that- in their interpretations- were the best models for a new technological society. Different actors making these proposals brought with them their own values and interests, as well as, belonged to and/or represented one or more relevant social group.

Ideal Types

"What is the ideal city for the twentieth century, the city that best expresses the power and beauty of modern technology and the most enlightened ideas of social justice?"[173] At the turn of the 20th century, three men attempted to provide reformist solutions that would answer this question. They were not the only ones geared toward social reform in their day, but they well represent the movements of the time.

From the late 1800's to the mid-1900's Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier, devoted themselves to designing new types of urban and architectural patterns. They envisioned an overhaul of the way city planning was going and enacted a

[173] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 56.

"rethinking of the principles of urban planning."[174] They saw that a restructuring was needed, with the hope to "solve not only the urban crisis of their time but the social crisis as well."[175] At the heart of their vision was a new type of integration. Their common position was that urban form has the power to transform society, that "reforming the physical environment can revolutionize the total life of a society"[176] Each, in their own way, was grappling with issues of social order, justice, and sustainability. Robert Fishman claims that their plans were influential because they appealed to people's hopes and fears of the time. These included:

> (1) the pervasive fear and revulsion from the nineteenth century metropolis; (2) the sense that modern technology had made possible exciting new urban forms; and (3) the great expectation that a revolutionary age of brotherhood and freedom was at hand."[177]

These "ideal types" of future cities were "elaborate models rigorously designed to illustrate the general principles that each man advocated."[178] They represented alternatives to current society, suggesting a revolution in politics and economy through planning and architecture. Through each of their versions of social theory, they presented

---

[174] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 21.
[175] Ibid.
[176] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 22.
[177] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 25.
[178] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 23.

on paper what industrial society ought look like. In the three versions of types, transforming the physical environment was tied to a transformation of the social world.

Each held in disdain the current state of affairs and saw a new planning scheme as a way to support a larger movement. According to Fishman, "All three brought a revolutionary fervor to the practice of urban design."[179] In particular, they each introduced planning concepts that went against the way planning and architecture was responding to industry and capitalism. The concepts differed greatly in how society should be structured. They were each affiliated with groups adherent to political philosophies and they represented the philosophies of these groups through their designs.

Howard was a cooperative socialist. To say that Howard advocated for cooperative socialism means that that he was pushing for a system characterized by small-scale cooperation and direct democracy, where mode of production and economy are based on use-value. In capitalism, actual use-value becomes a byproduct in the interest of production for maximum profit. Thus, Howard's "Garden City" schemes advocated for moderate decentralization and cooperative socialism. Howard envisioned cooperative "Garden Cities," which were meant to support all aspects of life in independent towns and as a way to beat capitalism. A large aspect of Howard's plans was the preservation of green space.

Le Corbusier was greatly influenced by Howard, but was a syndicalist. He was associated with a group of revolutionaries that wanted to replace capitalism with syndicalism as the nation's economic system. Syndicalism focuses on industrial labor

[179] Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier."

unions as a means to prevent economic aristocracy in the interest of a more fair society serving the majority. For Le Corbusier, "Industrialization meant great cities where large bureaucracies could coordinate production."[180] Le Corbusier proposed, "The Radiant City," in which he attempted to, "realize the contradictory elements of syndicalism"[181] through physical design. Namely, he sought to establish vibrant realms for both administrative order and personal family life. To get at this, he wanted to densify, intensely. A core city would lead the land, while surrounding cities would be leveled. He fluctuated in his interpretation of the built environment in relation to social hierarchy. He first presented models where only elites and professionals lived in high-rises in the urban core, and later presented models where all people would live in high-rises.

Wright was a Jeffersonian democrat. Meaning, his ideals were based on the promotion of equal economic opportunity and the prevention of aristocratic elitism in the interest of all people. He was also American decentrist. Whereas Howard saw decentralization as a spreading out of small-scale communities, Wright was advocating for extreme decentralization. Decentralization would make it possible for everyone to have his/her own land, and maintain individual freedom. He saw that people could tend to their own part-time farm, and work in a small-scale factory, or office, nearby. Highways could connect countryside collections of homes and businesses.

---

[180] Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier."
[181] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 52.

Whereas Le Corbusier sought to separate work and family life, Wright wished to make them more synonymous. He envisioned a nation that acted out its rights of individualism in terms of individual people and individual families. Wright envisioned a design that would facilitate a life pattern in which, "labor and leisure would be one."[182] While he conceived on the level of an urban pattern, he is mostly known for the architecture he designed in harmony with the environment and an associated philosophy he dubbed organic architecture.

All three of these ideal types were envisioned by actors as reactions to capitalism. Thus, it can be argued that they were constructed by thinking in the confines of the established system. Dually, over time, their visions were shaped by a capitalist society. For example, Howard's Garden City was ultimately shaped by investors, and manifested materially as a Garden Suburb.

Howard originally saw that, by bringing the development and the people of cities out of the congested core, and into the countryside, not only would people be happier, but concentrations of wealth and power would decrease. Howard was attempting to provide a model that would accommodate the working class, but he never gained enough support of the organizational working class movement. Politics of the time were shifting and were unstable. A variety of actors expressed an investment in wanting to realize a cooperative commonwealth, but relevant social groups were not in agreement. A number of cooperative organizations had formed, yet they would not fully get behind Howard.

---

[182] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 56.

According to Fishman, they were, "more anxious to preserve their independence than they were to create a new civilization."[183] Within the group, made up of his supporters, some actors were on the same page as him (in terms of understanding the Garden City model as an alternative to capitalism), while others saw it as a new marketing opportunity.

Alas, in order to get a Garden City built, Howard aligned with wealthy businessmen for financial backing. It was his sentiment that a prototype would inspire a great movement in the direction of the Garden City. In other words, he thought that if a Garden City were built, relevant social groups would have an artifact to which they could attach a shared meaning. In the end, there were some "Garden Cities" that were built, but they were Garden Suburbs. A series of factors, and the involvement of additional actors, led to the construction of cities which warped Howard's ideas. Contradicting the principles of his vision, residential designs were implemented on land far from the city, and did not include a mixing in of commercial or industrial components.

Despite Howard's initial intentions, he paved the way for a capitalistic suburbia. This type of criticism extends to Le Corbusier and Wright as well. A prominent criticism has to do with connectivity. For example, Le Corbusier's design schemes were scrutinized for a lack of connectivity between points of urban density. Many freeways were being built over or below residential areas completely disconnecting people, and LeCorbusier's schemes did nothing to address this.

---

[183] Robert Fishman, "Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier," in *Readings in Planning Theory*, Second ed. (Malden, MA USA: Blackwell Publishers Ltd., 2003), 46.

Such schemes led to completely isolated urban areas. People who lived in the inner city, who did not have means for reliable automobile transportation, increasingly lost access to jobs and services. With the suburbs growing, and businesses moving out, this problem was exacerbated. By and large, no means were provided to inner city workers in order to travel to suburban employment; public transportation generally did not offer services supportive of that.

Overall, critics often cite the three movements as failures due to them being too utopian and idealistic, yet the three influenced generations to come. In common, the three men saw planning and architecture as tools for inspiring a more harmonious way of living than the ones they witnessed in their times. They offered ideal types of industrial society, representative of socio-political groups. They embedded politics into their work, believing that design can shape society's behavior. However, none of them were completely successful in aligning enough frames of interpretation to ever see their type manifested in material reality in line with their original vision. A watered down version of an original design, or one adapted to capitalistic pressures, led to a loss of the original essence- physical and social. In the case of Howard's Garden City, it is evident that this held significant (if not dangerous) ramifications. The Garden City paved way for the Garden Suburb, and helped initiate the widespread birth of suburban development, which, to date, is characteristic of tremendous momentum.

Settlement Movement

During the years before and after the turn of the 20th century a very different approach to reform was taking place. Coined the "Settlement Movement," actors looking

to align goals of social equity formed their own version of cooperation. Middle-class people elected to establish "settlement houses" in poor urban areas that were quickly becoming known as "slums." Settlement houses differed greatly from the ideal types discussed above. Rather than propose overall design schemes of what an industrial society might look like, settlement houses met the social issues at the scale of individual people. The houses are described as, "large buildings in crowded immigrant neighborhoods of industrial cities."[184] These settlements began in England and quickly emerged in the U.S. They were started by actors belonging to relevant social groups characterized by religion and higher education. It attracted these actors, who as "settlers" or "residents," hoped to share knowledge and culture with their low-paid neighbors lacking access to educational opportunities.

The settlement movement was an innovative attempt to bring together society in the form of a new type of interdependent community. The thinking was that by living together, across lines of income and culture, knowledge sharing would happen, and one of the results would be an alleviation of poverty for the lower-income class. "Settlement workers" provided services to neighbors and helped remedy poverty in a number of ways.

Part of the social learning that occurred inspired settlement workers to advocate for the conditions of their neighbors. For example, workers at Hull House, in Chicago, surveyed neighbors about problems associated with living conditions, such as sanitation. They then pushed local government for reform in policy. They were successful in local

[184] Louise Carroll Wade, "Settlement Houses," *The Electronic Encyclopedia of Chicago*, 2005, http://www.encyclopedia.chicagohistory.org/pages/1135.html.

reform and also helped set the stage for similar movements at the national level. The settlement movement is considered a foundation for social work in the United States today.

A culmination of factors is cited as leading the decline of the settlement houses. Some of the factors include: war-time (which meant less attention on reform), a decline of industrial manufacturing in the area, new restrictions on international immigration, and regional African-American inmigration. The dynamics of the situation changed, and these changes resulted in a situation where, "residents and trustees were slow to respond."[185] The pre-existing meanings shared by relevant social groups were called into question.

Additionally, settlement workers, now with degrees in social work, expected salaries, and eventually workers did not live in the settlement houses. The houses became something akin to community centers. Urban Renewal disrupted many inner city neighborhoods, also straining the already dwindling settlements. Hull House was particularly affected, by a new expressway, and was eventually displaced by the development of university campus.

Urban Renewal and Anti-decentrism

In the face of declining industry, suburban sprawl, and city cores in need of revitalization, local housing authorities across the nation began to implement Urban Renewal redevelopment programs. Historically, urban renewal in its broadest sense has implied large-scale urban renovation with a focus on clearing "slums" that have resulted

[185] Ibid.

in neglected, over-congested areas. The concept is highly controversial and much documentation supports that it was implemented with a lack of regard to the residents inhabiting the areas. The residents get displaced. They are typically low-income minorities.

New legislation in the 1950's gave government the power to prioritize new highway and housing initiatives over considerations for disenfranchised people. Some argue the initiatives were outright racist. Robert Moses, probably the most recognizable and most controversial figure associated with Urban Renewal, was given an inordinate amount of power by the state of New York to lead many large-scale construction projects. In charge of public parks, bridges, highways, and housing projects, Moses' plans destroyed whole neighborhoods in the construction process. His work caused the displacement of residents and promoted urban design schemes that segregated people. He left a legacy of stifling proportions. It was as though he was planning cities for cars instead of people.

It was when Urban Renewal was in full swing that Jane Jacobs published, *The Death and Life of Great American Cities,* in 1961. She effectively called into question the motives, efficacy, and downright arrogant and inhumane city planning practices, that had gained momentum. She harshly criticized the ideal typologies of Howard, Le Corbusier, and Wright, and famously battled Moses in public discourse. Specifically, Jacobs argued against decentrism. Whereas the decentrists wanted to spread cities out- as a way to remedy congestion- Jacobs recognized the inherent value in the dense

communities already in existence. Dense neighborhoods were already established, spanning the course of decades, and organically exhibited functional relationships.

Significant was Jacobs' attention to the character of crowded neighborhoods that were being stereotyped as "slums." She argued that Urban Renewal did not remedy so-called existing slums, but only created them. The perception of overcrowded neighborhoods by bureaucrats was short sighted and unjust. She motivated activists to align and make a move towards advocacy planning. Jacobs challenged innumerable planning concepts that had been previously accepted with an air of perceived purity, such as parks are "good" and crowding is "bad." She pointed out that, in inner city culture, parks were often dangerous and crowded neighborhoods with many "eyes on the street" were generally safe.

Implications for Minorities

Relevant social groups were vying for influence having to do with housing, democracy, and a free economy, all underlined by institutionalized racism. Some focused strictly on the economy, and argued that ignoring a section of society will only weaken the economy in the long run. Others focused on the position that it was outright racial discrimination on behalf of political leaders and developers, and, at times, pleaded with themes of democracy hearkening of Enlightenment. Many agree the government never lived up to an adequate role in terms of facilitating channels for proper relocation or the provision of housing for those displaced.

B.T. McGraw stated the problem as being a lack of affordable housing for low-income Americans, both white and non-white. FHA loan provisions were professed with

the intention to assist in relocation. Provisions were supposed to assist private developers in meeting the needs of low-income families through rehabilitated or new housing. McGraw documents otherwise.

McGraw points out that 35,000 units of low-rent public housing were authorized for construction and that the President and the Housing Administrator indicated that Congress had been requested to increase the amount by an additional 70, 000 units. Also, Congress was requested to modify legislation to permit the authorized number of units to be built, so as to support families during relocation, while new public housing was under construction. But regardless of provisions outlined on paper, there were no proper channels by which the government facilitated a transitional process.

The Committee itself admitted that the only way to accommodate minorities, while maintaining a free economy, was for the government to support a facilitating of the process. Notice the use of the word "minorities" here. McGraw chose to focus on a "low-income" status, white or non-white, which was likely his an attempt to appeal to a wider section of relevant social groups and align frames of interpretation.

The final report of the President's Advisory Committee on Housing Policies and Programs (primarily composed of private businessmen) expressed concerns relating to housing the minority population. In the report it is stated:

> Too often, the opportunities of minority group families to obtain adequate housing are extremely limited or nonexistent. Too often, the workings of our free economy do not provide solutions that benefit minorities.[186]

[186] B.T. McGraw, "The Housing Act of 1954 and Implications for Minorities," *Phylon* 16, no. 2 (1955): 176.

In 1954, one housing administrator stated:

> It is very poor business to ignore one-tenth of our population as a housing market. It is worse than bad business. We are simply not living up to the standards of a free economy and a democratic society. For the housing economy has not been a free economy for the Negro.[187]

These statements acknowledge a history in which minorities do not have access to the same types of housing that whites do. As a minority group, they do not have the same type of agency as the majority group. The majority group restricted the minority group based on race. As non-whites searched for housing, they were excluded from the existing housing types that met the standards of non-whites as well as from newly developed neighborhoods. Non-whites comprised one relevant social group and low-income whites comprised another. On the issues of affordable housing and fair, government-led facilitative practices, they were in alignment. Overall, McGraw frames the issue as a challenge for planners and architects in the interest of one social group: low-income Americans.

Neighborhood Unit Theory, New Urbanism, Sustainability, and Mixed-use

David Walters argues that the problem of achieving both social equity and sustainable urban infrastructure in American towns is so urgent that quality architecture and sustainable principles are compromised. He roots an understanding of this dilemma in a long-standing discourse about principles of neighborhood unit theory, common to theory and practice in both Britain and the U.S.

---

[187] B.T. McGraw, "The Housing Act of 1954 and Implications for Minorities," *Phylon* 16, no. 2 (1955): 177.

Walters shows that sociologist Clarence Perry first developed neighborhood unit theory in the 1920's. In his published volumes, Perry detailed what comprises a cohesive neighborhood, and listed characteristics of a neighborhood typology, such as local shops or open space. (This is arguably the first appearance of the calculation qualifying a neighborhood by a 5-minute walking space).

The demise of traditional comprehensive planning, in the 1950's, led to a rash of new planning movements in subsequent decades (such as advocacy planning), which involved the development of supporting theory. Into the 70's and 80's, this was also true for architecture, which has created a great lack of consensus between the fields. In this time, neighborhood unit theory lent itself to the formation of fresh interpretations of historical ideas. "Town Planning," and "Traditional Neighborhood Development" are two. Common to groups in both countries was the belief that, "well-designed neighborhoods are the essential foundations not only of good urban form but also of thriving communities."[188] Relevant social groups were seeking to align around this value. For decades, at the heart of the debate about neighborhood unit theory has been:

> The use of historic urban types and patterns such as the perimeter block, the street, the square, etc., as the basic urban language of new development and redevelopment; and the reconstruction of single-use residential "bedroom suburbs" into articulate mixed-use neighborhoods.[189]

---

[188] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 144.
[189] Ibid.

With an added emphasis on the importance of typology, these are founding concepts for traditional neighborhood development. Walters refers to traditional neighborhood development as an "urban and social typology."[190]

A movement was beginning in search of an alternative pathway around which to align. Relevant actors began to align around both a traditional neighborhood development typology and a mixed-use typology. The conditions that actors wanted to change were a dying city core, sprawling suburbs, and decaying inner-ring suburban zones. Walters refers to these as being the components of market-driven urbanism and that they, "rarely form coherent patterns and their quality varies widely."[191] He reports that cities were revitalizing themselves, "by transforming from business hubs to central business districts packed with a mixture of uses."[192]

Andy Coupland states that the reasons for the return of mixed-use fit together like a "jigsaw puzzle,"[193] but loosely attributes an explanation to: development pressures concerning politicians and the public, a need for increased housing, a need to replace old buildings, and sustainability concerns associated with urban sprawl and over-dependence on the automobile.

---

[190] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 145.
[191] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 136.
[192] Ibid.
[193] Andy Coupland, *Reclaiming the City: Mixed Use Development* (London: E & FN Spon, 1993).

Coupland illuminates the fact that advances in technology pertaining to business and industry have transformed the way business is done. Because business can be done via internet, or even outsourced, the need for the traditional office environment is no more. As office spaces in urban areas look to be repurposed, the public is concerned with the architecture and design as being consistent with traditional character and urban livelihood.

According to Walters, as a "new" mixed-use typology started to gain momentum in Britain and the U.S., the typologies developed differently. (This demonstrates design flexibility and interpretive flexibility). He attributes this to Britain's uncompromised focus on sustainable energy use, and the fact that mixed-use development is largely government-led in Britain, whereas in the U.S. it is requiring of involvement by private actors. In both countries, an urban typology, characterized by density and a mixing of uses within walking distance, has re-gained momentum.[194]

Overall, choosing mixed-use development types over other development types has to do with, "the wish to sustain and improve town and city centres."[195] In 1995, the U.K. Secretary of State for the Environment began integrating the advantages of mixed-use development into government policy. Here is just one excerpt from a lengthy speech advocating for mixed-use:

> The emerging consensus is that development is more sustainable if it produces a mixture of uses. Segregation of land uses, encouraged in the past, is not relevant

[194] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 147.
[195] Andy Coupland, *Reclaiming the City: Mixed Use Development* (London: E & FN Spon, 1993).

> now. The trend back to mixed usage brings a number of potential benefits. It ensures vitality through activity and diversity. It makes areas safer. It also reduces the need to travel, making people less reliant on cars, bringing welcomed environmental benefits.[196]

This type of shift in policy cannot be mentioned without talking about the role of the United Nations World Commission on Environment and Development. In 1987, the Commission produced, "Our Common Future," also known as the Brundtland Report,[197] which sought to carry out the mission of the Stockholm Conference in 1972. Our Common Future alarmed the world about environmental concerns and widely introduced the idea of sustainable development. It has proven to be hugely impactful for areas of environmentalism, policy, and the promotion of sustainability ideals.

Something else of importance, also rooted in the Brundtland Report, is the idea of the "3E's," a common reference for the crux of the issues relating to the environment, economy, and equity. Scott Campbell presented a popular model of this in his 1996 article, "Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development." Campbell presents a diagram, "The Planner's Triangle,"[198] which depicts a relationship between the three aspects. Campbell argues, that while the three "E's" are often collectively prioritized by planners and others in wanting to achieve sustainable development, the three are in conflict. Campbell places equity, environment, and economy at three points of a triangle. More specifically, he

---

[196] Coupland, *Reclaiming the City: Mixed Use Development*.
[197] UNCED, "Report of the World Commission on Environment and Development: Our Common Future", 1987, <http://www.un-documents.net/ocf-ov.htm#1.2>.
[198] Scott Campbell, "Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development," *Journal of the American Planning Association* 62, no. 3 (Summer 1996): 297.

labels the three points, “Equity, Social Justice,” “Environmental Justice,” and “Economic Development.”[199] He characterizes the tension between equity and environment as a “Development Conflict;” the tension between environment and economy as a “Resource Conflict;” and the tension between equity and economy as a “Property Conflict.” In the center he places text that asks, “and is sustainability at the center?”[200] This is Campbell’s attempt to create a space for public talk around this issue.

Sustainable development can be defined as a way to reconcile these differences, mixed-use development being just one possible solution. The Brundtland Report defines sustainable development as, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”[201] This value has been adopted by numerous actors in the disciplines of planning and architecture, and, effectively, the definition has been expanded to include livability.[202] Livability can be described as a shared vision characterized by specific elements having to do with sustainable urban design.[203] Some of these elements might include a built environment conscious of: placemaking, public space, mobility, and building design.[204] Other models of the “E’s” propose a fourth “E,” representative of esthetics, inclusive of architecture.

---

[199] Scott Campbell, “Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development,” *Journal of the American Planning Association* 62, no. 3 (Summer 1996): 296–312.
[200] Ibid.
[201] UNCED, “Report of the World Commission on Environment and Development: Our Common Future.”
[202] David R. Godschalk, “Land Use Planning Challenges: Coping with Conflicts in Visions of Sustainable Development and Livable Communities,” *Journal of the American Planning Association* 70, no. 1 (Winter 2004): 5–13.
[203] Ibid.
[204] Ibid.

A resurgence in mixed-use development in the United States shares catalysts similar to those found in the U.K., particularly with the influence of Our Common Future. Two movements that have emerged in the U.S. that are rooted in Brundtland's interpretation of sustainable development are New Urbanism and Smart Growth.[205] New Urbanism is largely led by an organizational body, the Congress for New Urbanism (CNU). The CNU was founded in 1993 by:

> […] a group of enthusiastic architects looking to codify the thought behind their previous work in creating long-lasting and better-performing neighborhoods. Working against the conventional, predominant, sprawl-oriented dogma of the post-WWII period, the group had worked for years to create buildings, neighborhoods, and regions that provide a high quality of life for all residents, while respecting the natural environment.[206]

Overall, the major claim of the CNU is that New Urbanism is a way to create communities that are livable and sustainable. CNU largely frames problems and solutions as associated with human dependence on the automobile and related systems. According to the CNU, there are ten principles of New Urbanism: walkability, connectivity, mixed-use and diversity, mixed housing, quality architecture and urban design, traditional neighborhood structure, increased density, green transportation, sustainability, and quality of life.

While the principles of New Urbanism have been widely accepted by a variety of actors, there have also been distinct criticisms. Some claim that the movement emerged within the context of extant power relations and politics to the degree that the mission does nothing more than continue to move forward a new version of ethnocentric

[205] Ibid.
[206] "CNU: Congress for the New Urbanism," *CNU*, 2011 1997, http://www.cnu.org/history.

suburban sprawl.[207] Others warn that such development, if considered as a "sustainable urban growth initiative,"[208] tends to prioritize environmental concerns over the other E's, distinctly jeopardizing equity.[209] In terms of mixed-use development as a viable project option, another point of contention is that, often times, the economic stability of a project is compromised by the design standards rooted in these principles. Planners often promote these principles, and developers are challenged to make them work financially.[210]

Walters claims that New Urbanist leaders, namely, Duany Plater-Zyberk, directly borrowed the concepts documented by Perry, and that they, "updated it for American urban conditions at the start of the 21st century."[211] Walters highlights that American New Urbanism promotes the, "twin typologies of Calthorpe's Transit-Oriented Development and Duany Plater-Zyrbek's Traditional Neighborhood Development"[212]

Peter Calthorpe, one of the west coast founders of New Urbanism, has documented, in detail, some of the successes and failures. Calthorpe is said to be, "particularly critical of the tendency for New Urbanism to be misrepresented as a style of

---

[207] Michael Pyatok, "The Narrow Base of the New Urbanists," Magazine and Publications, *www.plannersnetwork.org*, 2008, http://www.plannersnetwork.org/publications/2002_152_spring/pyatok.htm.
[208] Michael Oden, "Equity: The Forgotten E in Sustainable Development," in *Pragmatic Sustainability: Theoretical and Practical Tools* (USA and Canada: Routledge, 2010), 41.
[209] Michael Oden, "Equity: The Forgotten E in Sustainable Development," in *Pragmatic Sustainability: Theoretical and Practical Tools* (USA and Canada: Routledge, 2010), 30–49.
[210] Jill Grant and Katherine Perrott, "Where Is The Cafe? The Challenges of Making Retail Uses Viable in Mixed-use Suburban Developments," *Urban Studies* 48, no. 1 (2011): 177–195.
[211] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 146.
[212] Ibid.

traditional aesthetics rather than a radical and challenging set of urban design and planning principles."[213] Calthorpe recognizes that, while many groups have aligned in support of New Urbanism, organizing common understandings across discipline has proven difficult. Calthorpe admits a pitfall common to all movements is that they at some point become detached from their original principles.

New Urbanism makes claims for well designed, low-income housing but there are few. The Hope VI project is commonly cited as a major success-in-progress until it was defunded by the Bush administration in 2006. According to Pyatok, Hope VI caused gentrification because it created conditions for homeowners to displace low-income renters. He argues: "those [renters] without property stand in the way of progress, and since they are much cheaper to move […] some must be displaced to create healthier communities."[214] Additionally, there is an often-cited controversy around CNU's refusal to align with particular housing coalitions. Pyatok and others criticize the basic make-up and principles-in-action of founding New Urbanists.

First of all, the founders of CNU come from backgrounds characterized by wealth and aristocracy. This points to a potential lack of understanding concerning diversity and the plight of the American people. Secondly, according to Pyatok:

> members of the Congress for the New Urbanism (CNU) more often choose to serve private developers who co-opt their mission by simply repackaging suburban sprawl in more seductive "urbane" clothing, or public developers who

[213] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 141.
[214] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 138.

too often trample on the lives of disadvantaged inner city communities.[215]

Thirdly, others claim New Urbanism is too utopian, nostalgic, and retrogressive. To add, these kinds of fronts are thought to mask private agendas that have been legitimized by social and environmental pressures. Their tools are typologies that have been "authenticated by several centuries of human use."[216] Typologies do not have agency in their own right, but possess the potential for momentum when employed as a tool by relevant social groups.

The private agenda is said, by many accounts, to be one of commidifying a New Urbanist typology. Thus, New Urbanists of this agenda want to create typological momentum in pushing the movement forward. According to Matthews, New Urbanists knew, if they were going to get anywhere with their movement, they would have to align with relevant social groups of two industries: real estate and construction. These groups are driven by two motives: "a worship of profit and a sensitivity to consumer preferences."[217]

Emily Talen argues that a "culture of criticism" surrounds New Urbanism. She claims planning is executed with great subjectivity and that opinions on New Urbanism are polarized.[218] On one hand, academicians generally assume a position of disdain, claiming that New Urbanism demonstrates, "a tendency toward cultural elitism,

---

[215] Pyatok, "The Narrow Base of the New Urbanists."
[216] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 136–137.
[217] Walters, "New Urbanism and Neighborhoods."
[218] Emily Talen, "New Urbanism and The Culture of Criticism," *Urban Geography* 21, no. 4 (June 16, 2000): 318.

homogeneity, and worse, nostalgia."[219] On the other, practitioners, by and large, uphold New Urbanism as a new iteration, of a recurrent pattern, and as one to be endorsed. She claims that practitioners effectively go against their own pragmatic views by way of neglecting overarching normative principles. By getting caught up in the debate and details, such as calculating the acceptable distance to a transit stop, the practicality is lost.

Talen reports that planned developments, including mixed-use ones, have typically failed in the past because, "only the residential portions were ever actually built."[220] To make matters worse, the polarization of opinions exacerbates perception, amidst a cultural climate actually receptive to the principles. Meaning, it is her view that the criticism of academicians is very harmful in a time where the public is well primed to adopt and support a built environment founded on New Urbanistic principles.

Talen calls out all participants in the New Urbanism debate and pleads for a better way of continuing the discourse. She implies that everyone is not on the same page and it is time to set some ground rules. Talen suggests a variety of ways to achieve this, such as restarting the debate with a focus on, "the underlying conceptual framework required for proper discussion of any normative planning."[221] She is looking to align frames.

Talen acknowledges New Urbanism as a legitimate attempt to combine a variety of traditions, although, arguably contradictory ones. Talen lists these ideals:

> the quest for urban diversity within a system of order, control that does not impinge freedom, an appreciation of smallness and fine-grained complexity that

---

[219] Ibid.
[220] Emily Talen, "New Urbanism and The Culture of Criticism," *Urban Geography* 21, no. 4 (June 16, 2000): 319.
[221] Ibid.

> can co-exist with civic prominence, [and] a comprehensive perspective that does not ignore detail.[222]

Moreover, Talen asserts, "history shows that divergences boil down to a few fundamental debates that get repeated over and over again."[223]

A theme of recurrent history describes tension between academicians and New Urbanists. Some academicians argue that New Urbanist principles have been watered down for the ease of developer profit interests. Walters points out that, in this regard, we have been taught a similar lesson before and are in danger of repeating it again with New Urbanism. The historic lesson echoes the introduction of new architectural ideals to the U.S. from Europe, the post-World War International Style. Soon after the International Style was introduced:

> Within a few years, the deeply embedded social agenda of European modernism had been eviscerated as the new building techniques and aesthetics became embraced by the real estate and construction industries in America for shallower ideas of newness and convenience.[224]

Matthews and Calthorpe agree that we are in danger of repeating this lesson with New Urbanism. As the urban typology gains momentum, it will be difficult to preserve the social intentions, given the market-driven context of urban development. In the end, implementing development, characteristic of New Urbanist or mixed-use typologies, is a negotiation between capitalism and neighborhood principles. Relevant social groups are caught in this struggle, and continue a challenging discourse that has been going on for a

---

[222] Emily Talen, *New Urbanism and American Planning: The Conflict of Cultures* (New York, NY: Routledge, 2005).
[223] Ibid.
[224] David R. Walters, "New Urbanism and Neighborhoods," in *Designing Community: Charrettes, Master Plans and Form-based Codes*, 1st ed. (Amsterdam and London: Elsevier/ Architectural Press, 2007), 142.

century. Not all actors possess an awareness of this, and not all relevant social groups attach the same agenda to a typology.

MIXED-USE DEVELOPMENT

This section is to provide a basis for better understanding the specifics of mixed-use development. First, I briefly discuss how the term is defined, or, rather, how it is interpreted by heterogeneous social groups. Second, I will offer two summaries of recent case studies of mixed-use development released by the Urban Land Institute (ULI). Third, I offer insights drawn from the work of Peter Hall in analyzing planning projects. The projects he critiques are not mixed-use projects, but are public-private collaborations. Because Hall identifies themes common to planning processes, they are helpful to this research. Moreover, his analysis is helpful in that it is *not* grounded in New Urbanism, so as to offer a view *not* entrenched in that framework.

Varying Definitions

As we have seen, the definition of mixed-use, or how it is interpreted, has changed and evolved over time. To Germans, mixed-use might mean any mixing of uses that is fitting and logical to an area of development. The definition of mixed-use development varies depending on the types of actors or groups involved, and can vary depending on state or city of location. Coupland discusses, at length, the ambiguity that surrounds a definition of mixed-use. For Europeans, it seems to include any mixing of land uses in a concentrated area and is viewed as a traditional form. In the United States, actors generally rely on the Urban Land Institute's definitive boundaries as a reference. The Urban Land Institute (ULI) defines mixed-use development in the following ways:

1. Three or more significant revenue-producing uses (such as retail, office, residential, hotel/motel, entertainment/cultural/recreation) that in well-planned projects are mutually supporting.

2. Significant physical and functional integration of project components (and thus a relatively intensive use of land), including uninterrupted pedestrian connections.

3. Development in conformance with a coherent plan (which frequently stipulates the type and scale of uses, permitted densities, and related items).[225]

According to a document from a 2006 Conference on Mixed-use Development, four organizations negotiated the following as a working definition of mixed-use development:

> A mixed-use development is a real estate project with planned integration of some combination of retail, office, residential, hotel, recreation or other functions. It is pedestrian-oriented and contains elements of a live-work-play environment. It maximizes space usage, has amenities and architectural expression and tends to mitigate traffic and sprawl.[226]

The website associated with the conference is copyrighted by the International Council of Shopping Centers. Before offering the formulated definition above, it is mentioned what mixed-use has historically meant, by referencing the Urban Land Institute's definition directly.

According to an online dictionary, mixed-use has to do with, "containing or zoned for commercial and residential facilities or development."[227] As for how a definition of mixed-use is applied in city planning, cities will often provide a general definition of

---

[225] Dean Schwanke, *Mixed-Use Development Handbook*, Community Builders Handbook Series 1st Edition (Urban Land Institute, 1987).
[226] "Mixed-use Definition" (presented at the 2006 Conference on Mixed-use Development, Hollywood, FL: International Council of Shopping Centers, 2006), 1–2, http://www.icsc.org/2006MU/index.php.
[227] "Mixed-use," *The Free Online Dictionary*, May 10, 2012, http://www.thefreedictionary.com/mixed-use.

mixed-use as well as provide other guidelines specific to the type of mixing, type of land use, or type of zoning- such as neighborhood planning, high density planning, or vertical mixed-use zoning. These varying definitions demonstrate that relevant social groups do not assign a common meaning. For the purposes of this research, all definitions of mixed-use will be considered, and what will be considered most relevant in context will be dictated by how the actors involved define and interpret mixed-use development.

ULI Case Study Research

The Urban Land Institute (ULI) recently released two mixed-use development case studies. The first, Southborough, is a development project that mixes more than three land uses in Charlotte, North Carolina. Southborough demonstrates new possibilities in mixing multi-family housing with "big-box" development. The second, Anthem Park at Uptown Village, is a development that mixes two uses in Vancouver, Washington. It is considered an urban regeneration project.

In what follows, I give a brief summary of each case. I include information about what I am able to glean as the issues or challenges that arose and how they were addressed. Both cases are reported to be ones of success.

Southborough

Southborough is an infill development project comprised of 69 residential units, a Lowe's home improvement store, and a commercial building measuring 30,280 square feet. Collectively, it equals 2.8 acres of developed land, and is situated on a site that is 11 acres overall. The mixed-use project hosts the following land uses: multi-family (for-

sale) housing, townhouses, ground-floor retail, mixed-use building, structured parking, and shared parking.

Two aspects seem to have supported the implementation of Southborough. Firstly, the project was preceded by other infill projects nearby. Historic buildings have been renovated as a part of the projects. Secondly, the first light-rail in Charlotte opened in 2007 and there is a stop about a third of a mile away. The light-rail, along with new zoning and planning policies that were introduced have helped encourage the growth of new infill development in the area. Southborough is considered a transit-oriented development with a pedestrian-friendly design.

The project began when Lowe's acquired the 11 acres and sought a land planning firm to come up with a site plan, which would include a Lowe's store in typical big-box form. They recruited a local firm, called Land Design, who informed them that the local community would oppose a big-box store. A local community organization, Dilworth Community Development Association (DCDA), was open to an alternative type of development to include a Lowe's.

Lowe's issued an RFP with the goal of identifying a partner who could help them develop in a way that would cater to neighborhood expectations. The firm selected, Conformity Corporation, is a Charlotte-based real estate company that specializes in mixed-use development and historic preservation. At the crux of negotiations between Lowe's and Conformity was Lowe's willingness to agree to provide rooftop parking in order to be able to offset the amount of land that was sold to Conformity. This effectively decreased the amount of surface parking that would be needed in the front of

the store. Conformity's development plan situated residential use in a way that created an unassuming buffer between Lowe's and its neighboring residences. As ULI reports, "rather than looking at the back side of the big-box store, the view […] would be of residential townhomes and flats."[228] The co-developers met with community and city groups many times, and, as a result, also included an additional point for connectivity.

The biggest geographical challenge for the development team was the width of the site, measuring 97-147 feet along its L-shape. Another challenge was in trying to meet the community's request for the Lowe's store to be out of view, while keeping in architectural character with the adjacent neighborhood. Of course, they had to balance expectations of the existing community, with the expectations of those to whom they hope to sell.

Community expectations were met by way of architecture. Three-story townhouses were built with a fourth-story of flats that shielded the Lowe's store from view. The way in which the flats line the store, not even the dwellers of the units have the store in view. Community character was kept in tact with local vernacular. Portions of the development, by the commercial corridor, exhibit an industrial design, while portions, near surrounding homes, exhibit a traditional bungalow style. The townhouses mostly have a traditional style to blend with the existing single-family homes. They are brick and wood with pitched roofs.

One of the biggest challenges for the architect and developer was a zero lot line between the rear and side walls of the store and the residential structures. Lowe's and

[228] "Southborough," *ULI Development Case Studies*, 2012, http://casestudies.uli.org/.

Conformity were able to reach a reciprocal easement agreement, and that is how the flats buildings came to be attached to the store. As for parking, a two-story structure is divided according to surrounding use. Thirty-seven spaces on the upper level are for ground-floor retail. On the lower level, fifty spaces are designated for office tenants, and six spaces are reserved for adjacent residences. Most of the residential units have access to private garages. According to ULI, this is an uncommon amenity for the area.

One of the key features of Southborough is a pedestrian-friendly design. As ULI reports, the design overall "is very porous and accessible."[229] Numerous pedestrian entrances allow residents and members of adjacent communities to access the development. Commercial and retail spaces have more than one entrance. Southborough hosts pocket parks, fountains, outdoor sitting areas, and gardens. Massing is interrupted by sidewalks that encourage walking, by way of water fountains, for both people and pets.

Southborough was ready to hit the market in 2008, and two factors greatly affected the rate of economic success. It was at the same time of the national housing slump, and the Charlotte region was especially vulnerable due to its banking market, which represents a large proportion of the Charlotte economy. Conformity Corporation re-priced units based on pricing indices that reflected a rate in line with the last time period in which housing costs were consistent with the index. They felt this was a better approach, and more marketable approach, to have data-driven numbers, rather than an arbitrary price reduction.

[229] Ibid.

They released the re-pricing in conjunction with a marketing campaign, complete with a new slogan and online social networking media. The campaign created momentum to get sales underway. The most challenging market to recover proved to be the office market. According to ULI, the developer, "broadened criteria for what is considered to be a suitable tenant, and is willing to sign a range of tenants in order to improve cash flow."[230] There has been a recovery of sales for the residential spaces and the office market sales allowed the developer to pay off construction debts.

ULI reports Southborough as being a successful example of incorporating a big-box store in a residential context while keeping with the character of the neighborhood. Establishing consent from the DCDA was difficult, and the appearance of the final project was crucial. It is reported that the neighbors are satisfied with the development, particularly because it is better than several hundred condominiums that could have popped up had Lowe's walked away. They do prefer a successful store and a half-sold residential development to that.

Anthem Park at Uptown Village

Anthem Park at Uptown Village, also an infill development project, is comprised of 58 workforce rental apartments, 22 for-sale townhouses, and 2,500 square feet of retail space, together occupying 1.5 of 5.2 acres. It sits across from Portland, Oregon, on the Columbia River, and features a public park and mixed-income housing. It is considered an urban regeneration project and features the following land uses: workforce housing, townhouses, retail, urban park, and underground parking.

[230] Ibid.

The land that would become Anthem Park was originally the home of Vancouver High School, which was torn down in the 1970's. The land was still perceived as nostalgic by neighbors living in mostly single-family residences nearby as well as the land was generally being utilized as park space by citizens. The public had even attempted to sue the City to try and prevent redevelopment. Thus, project developers found it critical to engage the public to ensure success.

The developer, Vernon L. Rifer Real Estate Development Inc., "has a record of completing complex and controversial projects."[231] A number of issues emerged and were negotiated between the City, developers, the Vancouver Housing Authority (VHA), business owners, neighbors, and neighborhood organizations. VHA, who owned the site, was pushing for both for-sale housing and workforce rental housing. The neighbors were vying for for-sale housing, provided the open space was preserved, and that it would be accessible. Business owners were wanting to see a Main Street lined with retail development.

The site had previously been rezoned in accordance with the Comprehensive Plan, which designated a portion of it to be community commercial (CC). CC zoning is intended to provide access to goods and services in a residential context. The zoning required that 60 percent of the total ground level square footage was to be developed as retail. This is because the land is situated along Main Street, which seemed to make sense when the Comprehensive Plan was written. In addition to it becoming clear that

[231] "Anthem Park at Uptown Village," *ULI Development Case Studies*, 2012, http://casestudies.uli.org/.

there was not a large enough demand for that much retail, residents in the area expressed they would like to see more owner-occupied housing.

The zoning was revised to designate only the two most visible corners at Main Street as CC zoning. Also, residential units along Main Street received live/work zoning status, in order to be able to offer owners options and flexibility. Additionally, more open space was allocated through the rezoning, and overall, as ULI reports, "A broader goal was to use the site as a springboard to create a more vibrant, diverse, mixed-use community."[232] The final plan is understood as a reflection of diverse stakeholders coming together, but not without a written agreement signed by all involved that no one would sue once plans got underway.

A main feature of the project is the 119-space underground parking garage on which the development sits. This arrangement allowed for more land to be used as open space, as well as made the project financially feasible. The garage was built with a concrete deck, which supports a plaza directly above. The garage is gated, and includes assigned open spaces for renters, and private enclosed two-car garages for townhouse owners. In terms of landscape architecture, it was challenging to transform the roof of the garage into a plaza. Weight considerations having to do with incorporating trees and soil were a challenge. The designers solved this by locating planters directly in line with the structure's load-bearing columns.

Innovative features, such as the designing of the parking garage to function as an amenity, attracted a significant financer. Bank of America's community development

[232] Ibid.

arm financed generous agreements with both the developer and the VHA. Additionally, the VHA deferred gap financing and land purchase.

The VHA originally owned the whole site. Rifer, the developer, is now listed as the owner. VHA continues to own the apartments, a portion of the parking garage, and a courtyard. The townhouses and retail spaces are owned by the developer. The main plaza is situated in the same space that the community had grown accustomed to using. It has maintained an open quality, and people are welcomed into the area with a main entrance, complete with a waterfall. The plaza is being used by diverse members of the community, including seniors who live in apartments nearby. It is said that the plaza is, "the real focal point of the community."[233]

Anthem Park at Uptown Village appears to be a success, according to the reporting of ULI. The developer was known for accomplishing successful projects amidst challenging factors. ULI reports it was important to Rifer for the entire community to feel, "they got what they wanted."[234] Rifer recognizes that the community that opposed change in the beginning is the same community that can embrace it. It makes good business sense to listen to the people who represent your market. In Rifer's words, "In the development business, there's making money and there's making community. Building buildings is easy; building community is harder."[235]

[233] Ibid.
[234] Ibid.
[235] Ibid.

Lessons from Public-Private Collaborations

Many mixed-use development projects are public-private collaborations, including the case studies at the core of this research. The summaries of the ULI case studies, above, represent an analysis of the details pertaining to two mixed-use projects, and are portrayed as successful through the eyes of ULI. In order to offer some overarching critical analysis of planning projects, I have decided to include some insights compiled by Peter Hall from his book, *Great Planning Disasters*, which analyzes a variety of planning projects. While written in 1980, at least one reviewer, Jaclyn Gault, maintained that the book was still "extremely relevant"[236] in 2005. Such a critique is important to include because, as will be revealed, the methodology of this work considers failures as equally relevant as successes.

According to Hall, planning has two different, yet related, meanings. First, he says, "It can refer to a set of processes whereby decision-makers engage in logical foresight before committing themselves."[237] Processes can refer a number of things depending on the project, but can include evaluation of objectives, forecasting, design alternatives, economics and/or public order, to name some. Hall mentions that planning, in this sense, is common to both public and private affairs. Hall's second meaning of planning, "can refer to processes that result in a physical plan showing the distribution of

[236] Jaclyn Gault, "Great Planning Disasters, Review", May 2005, http://jaclyngault.com/writtenworks/writtenworks.html.
[237] Peter Hall, "Overview," in *Great Planning Disasters* (Berkeley and Los Angeles, California: University of California Press, 1980), 1.

activities and their related structures (houses, factories, offices, schools) in geographical space."[238]

Hall defines a disaster to mean, "any planning process that is perceived by many people to have gone wrong."[239] He surveyed a total of seven projects collectively located in a total of four countries, two being in the United States. He classifies five of them as disastrous, and two as near disastrous. Whereas the five disasters completely failed to meet the original intent of the project, or economic feasibility, the latter two proved to meet some success over time. Additionally, Hall delineates between negative and positive disasters:

> Negative disasters are those that sparked so much controversy and ended up being so infeasible that they resulted in the project being severely altered or thrown out completely. Positive disasters on the other hand, were carried out despite their detrimental consequences.[240]

All of the development endeavors required both public and private participation, in varying degrees. In Hall's analysis of the development projects, there are themes that emerge to be regular issues of conflict, including: "poor financial planning, inadequate population studies, and the ego of those in power."[241] Hall arrives at these themes through his approach, which is based on three types of uncertainty.

First, there is uncertainty about the relevant planning environment. Planners cannot predict anything outside of what is within the control of their "immediate

---

[238] Peter Hall, "Overview," in *Great Planning Disasters* (Berkeley and Los Angeles, California: University of California Press, 1980), 2.
[239] Ibid.
[240] Gault, "Great Planning Disasters, Review."
[241] Ibid.

decision-making system."[242] Because of this, leaning on population studies and forecasts of public behavior prove to be inadequate. In two of the cases studies- the Anglo-French Concorde and San Francisco's Bay Area Rapid Transit- a detrimental factor was a losing struggle to market them to the public. Additionally, costs for the projects were forecasted to be much lower than how they panned out in actuality. Moreover, projects many times lasted longer than government officials' terms and the public opinion they represent.

Second, there is uncertainty about decisions in related decision areas. This is similar to the first kind of uncertainty but more internal and acute. This type of uncertainty has to do with actors wearing multiple hats, by being part of other organizations or having other investments, for example. This can create an issue because actors are then exercising some level of discretion outside of the focus of the planning project. For example, to again refer to the Concorde project, the government officials in charge admitted they were most interested in racing past the Americans in technology by marketing one of the first super-sonic jets. Government officials covertly secured private funding from supporting organizations after funds from the Treasury were exhausted.[243]

A third uncertainty is uncertainty about value judgments. Hall notes the difficulty of gauging values for the public, even in a "democratic" society. He highlights that values of different groups are often in conflict. Regardless of public values, it is the

[242] Peter Hall, "Overview," in *Great Planning Disasters* (Berkeley and Los Angeles, California: University of California Press, 1980), 5.
[243] Peter Hall, "The Anglo-French Concorde," in *Great Planning Disasters* (Berkeley and Los Angeles, California: University of California Press, 1980), 90.

people in power who most often get to see their values materialize. Unfortunately, Hall points out that, many times, government officials make choices based on power, prestige, and ego, as opposed to how dollars might be best spent in the interest of the public. Similar to the Concorde project, the government involved in the development of the Sydney Opera House, "was committed to a prestige project for political reasons" and "cost was almost a secondary consideration."[244]

Overall, all of the projects involved a government that was under the influence of political pressures. Hall admits there is no "magic formula"[245] to remedy this issue, but he makes a solid case that there is much room for improvement so as to prevent such extreme disasters in the future. Hall makes two major recommendations: 1) that project planning should be made flexible, allowing for alternatives and changes after project development has begun, and 2) that there should be a planning system in place that holds actors accountable, helps balance power, and seeks to create consistency in a shifting and uncertain environment.

[244] Peter Hall, "Sydney's Opera House," in *Great Planning Disasters* (Berkeley and Los Angeles, California: University of California Press, 1980), 148–149.
[245] Peter Hall, "Towards Prescription," in *Great Planning Disasters* (Berkeley and Los Angeles, California: University of California Press, 1980), 249.

Chapter 4: Findings and Analysis

In this chapter, I present findings and analysis in regards to primary data drawn from two mixed-use development case studies. This chapter contains three major sections of analysis. In the first section, I provide an overview of project findings by way of descriptions and preliminary analyses. I offer a description of the first project, followed by a preliminary analysis. I then offer a description of the second project, also followed by a preliminary analysis. At the end of the section, I offer a preliminary comparison of the two case studies.

In the second section, I provide an analysis based on the HyperRESEARCH coding method. I employ the codes, and the categories created from those codes, to organize themes and ideas. Through the categorization system, I discuss each case, separately, as well as make regular comparisons. While I did introduce the use of HyperRESEARCH, and discuss the organizational method related to it, in Chapter Two, I will discuss it in further detail in this section. It is most useful to the reader to discuss it in juxtaposition to the findings for the sake of clarity.

In the third section, I present an analysis based on the Bijker/ Pinch three-stage methodology. I will be analyzing key pieces of data from the case studies having to do with points of conflict. Findings from the third stage are carried over into the conclusions chapter, Chapter 5, since they have to do with the larger socio-political milieu.

In sum, the first section is mostly about the presentation of findings, with preliminary analysis. The second and third sections are meant for deeper analysis. The second is mostly about revealing the interpretations and relationships of actors. The third

reflects a focus on the analysis of interpretive flexibility and closure as demonstrated through the case studies. Analysis will be carried over into Chapter 5, in the form of conclusions.

CASE STUDY FINDINGS

Transit-oriented Development (TOD) Case Study

Project Description

The first case study is a mixed-use, transit-oriented development (TOD). It is centrally located in the urban core of a city with a population of 812,025. The city is known to be relatively progressive. The city within which the TOD is located has a total land area of 307.80 square miles. The city experienced an average annual growth rate of 3.5% in the 1990's. In the year 2000, the city saw an increase in population upwards of 6%, and from 2001 to 2010 annual growth steadily ranged from almost 2% to a little more than 4%. The city employs approximately 2,558 civil service employees and 8,508 non-civil service employees.

The TOD project is one of the first of its kind in the region, and, before it is all said and done, is expected to introduce a variety of components largely associated with New Urbanism. Some of these components include: a higher level of density and a higher level of mixed-use (compared to previous developments in the region), public art, and off-road bike paths.

The development began as a 72-acre brownfield in 2004. That year, the appropriate zoning which made the land available for development passed as well as did the new rail plan of the local transportation authority. Also in 2004, the land was sold by

a petrochemical company and was purchased in a joint venture between two development firms. One specializes in single-family development and the other has a special division focused on high-density urban reuse. It was expected that the former would handle any of the single-family development and the latter would be responsible for any of the multi-family or commercial development.

In 2005, the City passed a TOD overlay, requiring new minimal standards for development. The local transportation authority was in the process of implementing a new light rail with limited stops and function. The transportation authority was interested in putting a stop on that portion of land slated for mixed-use development. The transportation authority was also interested in creating bus access on that same section of the site as well. An actor from the public sector, involved with the development of the mixed-use section of the project, reports that this is when the collaboration between public and private entities began. The City and the owner initially shared the prospect of building a grocery store, but decided not to, due to opposition from the neighborhood.

At the time of purchase, the site was primarily vacant with some industrial buildings and recreational fields present. Because the site had operated as a petrochemical research facility for fifty years, it required remediation. However, the previous owner was unaware as to the extent of the contamination. Because the previous owner was unwilling to allow any investigation prior to purchase, any prospective developer was subject to a high level of risk. In order to help alleviate this risk, the developers contracted with an environmental firm to conduct the contamination investigation and site remediation. The environmental firm became responsible for all

demolition and remediation, and assumed any environmental liability. With this reduction in liability came a high price, substantially increasing the basic land cost for the developers.

Investigation, demolition, and remediation took roughly two years to complete. A private sector representative noted, "It probably took about a year to do the work, and then about a year to do the paperwork […] We were going through all that, and it really gave us time to massage the design."[246] During this time, the City engaged in what is known as a joint development agreement with the developer. This agreement resulted in extensive collaboration and compromise, in regards to building and designing the necessary infrastructure, between: the developers, the local transit authority, and the City's Planning and Development Review and Public Works Departments.

New citywide design standards were adopted in 2006 and made effective in 2007. Because the timing of the standards and the timing of the planning and designing of the project coincided, the developers were unaware of this requirement. The adoption of the new regulations, which took place during the two years that the developers were awaiting the completion of the site remediation, required that the developers alter the design of the project. The interviewee stated, "Well that hit us hard, but it was a short battle, and I think it was easy from [the City's] standpoint because [we didn't] comply."[247] It was a short battle and easy for the City, from this actor's perspective, because the opportunity for negotiation was non-existant; the regulation was cut-and-dry and there was nothing

246 "Confidential Interview with an Actor in the Private Sector," Face-to-face interview, March 3, 2011.
247 Ibid.

that could be done but adhere to it.

Different types of conflicts arose during the design and construction process as a result of the new standards. For example, it required that commercial buildings be built to the sidewalk, with no allowance for parking in the front of the building. A private sector representative described these guidelines as:

> [Constraining] the whole pedestrian and bicycle experience between the buildings and the road. What the code required was that [developers] pull those buildings all the way up to the property line; the intent being to pull the traffic inside the development.[248]

According to a March 2011 interview with a private sector representative, the initial site plan submitted to the City (finalized near the end of 2005/ beginning of 2006) included a bay of parking, referred to as "teaser parking," in the front of the commercial buildings along the roadway. The interviewee noted, "[the] original site plan had the buildings you see there today, but they were moved fifty feet back from the street."[249]

Other compromises took place throughout the design and implementation process, including compromises between different City programs and departments. For example, it was discovered near the end of the construction process that a previously unnoticed traffic light pole was located in the center of the proposed entranceway to the development. At that stage in the construction, there were eight months remaining before the development project was intended to open. Accommodations and compromises were necessary by both the City and the developer to find a timely solution, resulting in a

[248] Ibid.
[249] Ibid.

slight alteration of the entranceway and the movement of the traffic light pole. The material solution had to satisfy the interests of groups, both the City and the developers.

Additional issues had to do with transportation and connectivity. The expectation was that the local transit authority and the City would have had the new rail line running much sooner than it did. For the developer, time is money, and developers take the fall for losses associated with empty commercial space. The site of the project is situated along a busy road, and accessibility and safety issues dictated that the bus route be directed through the roads of the development. This presented a host of issues related to the width of the streets, public versus private property, and other items having to do with bus access in general. Additionally, there is talk coming down the pipeline about the adoption of pre-design features for bicycle ways. Moving into the future, the City sees that an ideal solution is to eventually redesign the entire area of roadway adjacent to the development. The current urban landscape and surrounding walkways are not conducive to particular elements such as connectivity. An aspect associated with this, as well as a general point of contention among actors, is the issue of utility lines and the debate about leaving them exposed or burying them.

There are a number of actors representative of relevant social groups from public and private sectors that have been involved, and are still involved, in the development process. Heterogeneous relevant groups assign different meanings to mixed-use development. Actors represent groups and bring to the table a set of interests, and concerns, representative of that group. Along the way, there have been challenges across relevant groups in terms of regulatory changes. The regulations changed during the

process, and they have since changed again for future developments. What has resulted is a complex web of interactions among relevant social groups, and, actors agree that, there was tremendous negotiation concerning the details of the development process.

Project Outcome

As of 2011, the TOD has experienced steady growth with a majority of its success revolving around high occupancy rates of the 316 residential units. Occupancy was reported at 98% in April of 2011. While the land venture was originally funded equally by two developers, one of the developers ended up buying out the other. The developer then took out an equity partner (with a new real estate company) for 20 acres of the land that was developed first. The remaining 60 acres were in a holding pattern due to market conditions for at least a year. A private homebuilder purchased the remaining undeveloped acreage and currently has plans to create higher-density, single-family dwelling units on the land. The homebuilder's involvement implies that the mixed-use development project is an attractive investment.

While residential growth has provided optimism for a future of success, retail and office growth has lagged behind. High vacancy rates remain in the retail portion of the development. This can be largely attributed to the downtrodden economy, beginning in 2007. With decreases in jobs and spending, the demand for high-rent, compact retail spaces has declined. In addition, the argument could be made that design has had a negative effect on the retail. The City's requirement that buildings be brought up to the street, instead of having parking between the buildings and the street, has led some to believe that the retail spaces are less visible to those passing by in various forms of

transport. Instead of seeing bays of parking in front of the retail stores, those driving past see buildings without visible parking, or signage for that matter. One actor involved in the project claimed that this requirement, alone, was responsible for potentially millions of dollars in lost revenue.

Despite slow retail and office growth within the TOD, the high occupancy rates of residential units, coupled with a functioning rail station, provide many with confidence that it can become a true live-work-play development. With a strong core of rooftops in the surrounding area, and with those added within the new development (and with more on the way), it appears as though the TOD is on the verge of harnessing demand and becoming a thriving mixed-use development.

Preliminary Analysis

Integrating new standards with old ones poses challenges to actors. From the City's perspective, an attempt is being made to plan long-term and to realize a walkable vision for the area. Developers are challenged by ever changing design plans and often see the standards as conflicting. The City gives off mixed messages in regards to this issue. On one hand, a city actor acknowledges the need for flexibility and consideration on a case-by-case basis, given that the City's priorities are often in flux. On the other hand, an involved stakeholder reported that the regulation was cut-and-dry, and there was no choice but to submit to the City. The new design standards had been adopted and implemented while the City was establishing the joint agreement with the developers. In addition to the City not informing their partner, there was not a channel for negotiation. In sum, relevant social groups are not in consensus.

In the new regulations, enacted by the City, it is not explicitly stated that the design standards are New Urbanist in nature. Yet, actors representative of various social groups interpret them as being New Urbanist, and as if it is common knowledge. A look at the city policy shows that the standards are consistent with principles of New Urbanism. Some actors attribute lagging retail occupancy to aspects of the new design standards, which some actors say do not make sense to the public. It is the position of these actors that, due to the application of New Urbanist principles in the design landscape, the project has been laid out to cater to an interior space. It does not yet appeal to passersby, mostly in automobiles. With buildings facing away from the main road, indiscriminate wayfinding, and no visible parking, users may be challenged to feel invited to take advantage of what the development has to offer.

The project calls into question the amount of funding the City should provide in a public-private partnership such as this. It is acknowledged that the City did not provide assistance for the environmental remediation of the land. It is dually recognized that, in other models of TOD-site initiatives, city entities offer aid or incentives to help reduce the costs associated with the expectations of new code and regulations.

Because of the changing regulatory environment at the time of the project's conceptualization, an effective public-private partnership was necessary to help expedite the approval process. The TOD was one of the first major urban infill projects to be developed since the inauguration of the new ordinance and guidelines; therefore, neither party was familiar with how to effectively work within the regulatory boundaries imposed by a new regulatory framework. Implementing the project was an experimental

process for both the City and the developers. This process helped identify conflicts and issues between the parties, which encouraged changes to the TOD ordinance in hopes that future TOD development would be easier. At the December 2010 focus group session, a public sector representative noted that,

> [there were] a number of different regulatory changes in [the site] area over the last five years, and this development initially started before any of [them]. […] We've already had some lessons learned from those regulations that have been adjusted for future developments.[250]

Developers continue to try and attract retail and residential occupants. They aspire that anticipated growth in the use of the rail line, coupled with commercial growth, will help the development gain momentum. Despite the challenges in the process for the TOD, many of the intended design characteristics of the project were realized. This may point to the creation of a growing demand for the live-work-play lifestyle, particularly one strategically located along a rail line near educational institutions and a downtown.

The TOD, all and all, was a concerted and concentrated collaboration, and, for all practical purposes, the mixed-use development project as a technological system reached closure. Some auxiliary aspects, such as state of utility lines and additional bike paths, are still in flux. Those items have reached temporary closure. Relevant social groups entered the process with some assimilation of a shared meaning. The role of the transportation authority aided success by balancing development interests and city interests, as well as by delivering a functional rail line. The rail line largely contributed to the momentum of the project during the preliminary processes, and set the stage for the

[250] "Confidential Interview with Actors in the Public and Private Sectors," Face-to-face focus group, December 4, 2010.

mixed-use development as a technological system to gain momentum in going forward.

Traditional Neighborhood Development (TND) Case Study

Project Description

The second case study is a traditional neighborhood development (TND). It is located in a suburban area, known to be relatively conservative. The 470-acre site is situated in a county that neighbors the county that hosts the city of the previous case study, Case Study A, and is outside of that city's jurisdiction. This city has a land area of 17 square miles with a reported population of 79,848 in 2010. The city experienced an explosion of growth from years 1990 to 2007, with percentages in growth consistently ranging from 5.53% and 19.22% per year. Population growth has leveled off since 2008, and the trend has been a 2-3% increase in growth per year. Estimated growth from present (2012) to 2015 ranges 2-3% per year. The city employs 144 civil service employees and 210 non-civil service employees.

This city can be considered a pioneer, in the implementation of the development of a TND/ mixed-use project, in its region. The project began when the City held a competition for the development of a "Town Center." Private owners of a tract of land won the competition in 1998 and the two entities began planning for the site. The City hired a private land design firm to help create a master plan, and plans were set into motion to create a TIRZ (Tax Increment Reinvestment Zone). A private homebuilder became interested in the project in 2000 and assumed financial responsibility for improvements that were to happen under the TIRZ.

The project was largely shaped by the City's comprehensive plan. The plan was created in response to community growth and a need to create a guide to aid in the future direction of the city. The plan outlined the need to make the city a "hub" city, taking advantage of its location near natural resources and other central Texas communities. The need for a "town center" was outlined in a downtown plan section calling for the creation of a "town center" either north or south of the city's main thoroughfare.

The creation of a downtown plan represented the desire of city leaders to create an economically vibrant downtown area that would promote a pedestrian-friendly environment with the benefits of: "higher density, a higher tax base and creation of a sense of place." [251] The City saw the site as being prime for development due to it being an undeveloped greenfield located near an existing transportation network (holding potential for a light rail stop to the west of the site), compatible zoning, and landowners that were "willing participants."[252]

Stemming from the comprehensive plan, and subsequent downtown plan, was an urban code and regulating plan specific to the site. Adopted in 2001, the regulating plan established codes to put into motion the ideas brought about in the comprehensive plan. Policies were put into place to create a downtown district that would move away from the traditional "strip center" model that had become widespread throughout the area. The regulating plan applied to 371.70 acres of development.

---

[251] "Confidential Interview with an Actor in the Private Sector," Face-to-face interview, December 4, 2010.
[252] Ibid.

TND was proposed as the ideal type supportive of a downtown. TND took into account the need for pedestrian-friendly residential areas that are walkable and that maintain a well-connected transportation network. The code would serve as the policy framework for a future town center, providing guidance and requirements for such things as: a town square, townhouse streets, residential streets, frontage types, easements and building restrictions, etc. The code is essentially form-based and is written to create standards focused on the physical design and the relationship between uses, as opposed to traditional zoning practices. This New Urbanist style of design code was a first for the city and, to a large degree, was incorporated due to the influence of a private consultant, as well as a homebuilder, who worked on the project in the early stages.

In 2001, two things simultaneously happened: 1) the City Council established the boundaries of a TIRZ District, encompassing the site of the proposed development, and 2) the homebuilder put 240 acres of land under contract for single-family development. The initial regulating plan was adopted in 2001 and included a 107.8-acre downtown area containing: 525,000 square feet of retail space, 572,000 square feet of office space, 212,000 square feet of civic space, 187 multi-family residential units, 500 hotel rooms, and 6,100 parking spaces. Construction of TIRZ improvements were approved and executed in 2003, incremental taxes being utilized to fund a boulevard, an entry bridge, and a pond. By 2004, downtown TIRZ improvements were complete as well.

Plans were revised and the City determined an event center would be located in the town center and changes were made in regards to the commercial zoning. An RFP was issued for the development of the commercial site. In 2007, the landowners decided

to sell the 107.8 acres zoned for the downtown area. A new development firm bought the property. A series of amendments to the development agreement were to follow. Amendments had to do with the boundaries of the TIRZ and the code (as determined by the regulating plan), until 2009, when a TIRZ Board was appointed by City Council.

The expectation of the TIRZ was that the City would help offset infrastructure costs by reimbursing the cost for certain public amenities (such as an amphitheater, trails, and fields). Balancing infrastructure costs with development costs proved to be challenging. Elements such as enhanced architectural design and improvements to off-street infrastructure (such as lakes, open space, or parks) became financially burdensome to developers. For example, due to the design standards of the TND, the urban landscape was required to be developed to host both alleys and roads. This caused at least two issues that were new to developers and to the City: 1) alleys as part of the initial infrastructure costs were significant compared to conventional front-load costs, and 2) road requirements for both were a concern to the Public Works Department, and kept getting pushed larger due to fire and emergency concerns.

Figuring out capital structure financing to attract commercial developers to build and lease at the developed site have been weighed with the expected finance structure of residential development. There was already a strip of commercial development on a nearby highway, and new development could be seen in competition. One financial aspect of residential development for this region, as understood by relevant social groups, is that condominiums, for example, need to be priced lower than single-family development as market products to compete. Amidst the planning for commercial and

residential development, other topics of regulation, in terms of the interface between the two, are also issues. Aspects such as lights, noise, and signage have all required sustained negotiation, and is expected to continue.

Project Outcome

Retail in the commercial district is lagging. It is isolated since there has yet to be a city hall or center of activity built in the area. Additionally, the potential for active rail was squelched as the City opted out of membership of the transit authority's light rail program. Throughout 2010, the City and developers renegotiated the status of the TIRZ and considered terminating it. In early 2011, the City announced it would shrink the TIRZ to include only single-family development. This decision was made when $50 million in revenue (expected from the retail portion) was not realized by the end of 2010. The City was presented with the opportunity to purchase an office campus elsewhere to be retrofitted for civic uses including a future city hall. With the delay in downtown development and the "town center," the City determined it was in their best interest to pursue this new opportunity for the city hall and other buildings.

Most recently, the new development firm that owns the area slated for downtown development has proposed a change in zoning from "downtown district" zoning to planned development zoning. The firm has amended its 2007 concept plan for the downtown area, in large part, due to the City's decision to place such things as the city hall and event center at other locations. The City's determination regarding alternate locations for buildings, as well as the emergence of a new mall nearby, has influenced the firm to make major changes to the planned development. New concept plans show less

density than the 2007 version, along with an influx of larger retail stores and increased parking spaces. Thoroughfares have also been reduced, creating less connectivity within the development. Overall, new plans promote a more traditional suburban retail center with only hints of New Urbanist design patterns. Commercial leasing space lines the property along the highway, and parking lots have taken the place of what previously was to include civic buildings, mixed-use retail, and multi-family housing.

All and all, despite challenges having to do with retail development and office use, a new landscape design concept, i.e. traditional neighborhood development, has been introduced to a suburban area. Residential development continues within the TND site. Houses within the development have remained affordable and have sold well. The acreage deemed to be the future town center remains in limbo, as it has been passed on to the developer. Both the residential and commercial developers within the TND are currently in talks with city officials, in an attempt to make changes to the existing form-based code.

Developers continue to work with the City to create a town center that can provide the TND with a true "downtown" identity. Hurdles, including the rigidity of the form-based code, the presence of a new retail mall, and a still struggling economy, have slowed the development process and have significantly delayed the creation of a "downtown."

Preliminary Analysis

A struggle between public and private entities and significant shifts in agreements on behalf of the City have placed developers a tough position. The implementation of

TND design was new for the area and, as a result, marketing residential development has proven to be a challenge. It has been difficult to sell homes amidst a housing crash, and in light of the public's unfamiliarity with mixed-use and TND. At the December 2010 focus group session for the TND, one representative in the private sector explained that the expectation to market residential development at a premium, due to added benefit of facilities and amenities, was not met. The houses had to be discounted. In the words of the representative:

> People came over here and said, 'Gosh, well I can go over to XYZ subdivision a mile away and I can get a 65x135 foot lot and 2000 square foot house for 180k, and you want 190 here?' Well the reason we want 190 is it costs a lot more to develop this.[253]

Being placed in a tough position, the developer reverts to the suburban typology. The developer's decision to change the zoning and concept plan likely stem from the influx of retail in the general area (within a mile), and the need to create a more suburban-like development projects with commodities historically proven to promote leasing. With the City vacating the plan for a downtown- including civic buildings and uses- the push for a town center, or downtown area, has arguably lost steam.

Being that the site is located in the TIRZ district, the expectation is that the City is to help offset infrastructure costs by reimbursing certain public amenities (such as an amphitheater, trails, and fields) with an incremental tax fund. Balancing infrastructure costs with development costs proved to be challenging for actors involved in this public-private collaboration. For developers, the implementation of TND design elements can

[253] "Confidential Interview with Actors in the Public and Private Sectors," Face-to-face focus group, December 4, 2011.

be more costly than conventional urban design, and are being presented to an unsure market. Elements such as enhanced architectural design and improvements to off-street infrastructure- such as lakes, open space, or parks- are extra burdens to developers, yet are not generally understood by the community as public good since the TND project is a new concept and a new type of development for this city. Negotiating governmental participation, in terms of how much infrastructure the City should fund, has been an ongoing issue.

The TND has not reached closure in any way. Following the completion of the initial stages of development, certain issues have come to light. Economic challenges have become apparent. As for residential development, marketing has been a challenge. It has been difficult to sell homes, given the public's unfamiliarity with mixed-use and with TND. Retail in the commercial district is empty and isolated, since there has yet to be a city hall or center of activity built in the area. Changes along the way in the regulation of land use have made it difficult to execute development in accordance to the original vision. Limitations placed on non-residential use, for example, have made developing in accordance to the original plan more costly. Items, such as a narrower range of housing products than expected and unfinished outdoor spaces, evidence this.

The TND did not reach closure and did not reach success, as defined by the actors. Major factors include: the influence of an unreliable city government, a confused and complicated planning process, and the downturn in the American economy. This experience has taught developers that a TND typology is not marketable. However, the outcome of the project does not demonstrate features coherent to a TND typology. The

final outcome is something more akin to a hybrid typology, comprised of TND and suburban components. This is directly related to the fact that actors were never in agreement as to what a "TND" is from the inception of the process. Relevant social groups did not assign a similar meaning to TND as a technological system.

Comparative Analysis of Case Study Overviews

First and foremost, a significant analysis is due in order to address the composition of the relevant social groups discussed in these cases. As the data reflects, social groups tend to be lumped together. For example, "the City" may designate any number of actors or groups that are affiliated with an entity associated with city government. "The City" can include: public works departments, planning and development departments, city council, a city board, or individual actors associated with city government, as in "city leaders." In some cases, an actor described as a city leader may or may not be employed by the city, but the perception is that the actor represents the city.

I am representing the data as it was presented to me. In my research approach, I made a commitment to understand the issues from the view of the actors. A stated goal is to discover the nuances in communication and action on behalf of the actors from the "inside." While I could infer the groups that are implied, or make my own delineations between relevant social groups, that would be basing my analysis on previously constructed knowledge. Thus, in going forward, I work with this emergence of groups being lumped together, or amalgamated. When groups are amalgamated by category, it embodies the interpretation of the actors involved in the process. It is different from a

frame of interpretation that can traditionally be associated with a relevant social group because it embodies the perception of the actors who use the term. The case studies reveal that actors might belong to a relevant social group (or an amalgamate social group) or more than one social group, as well as change their frame of interpretation at will.

The amalgamating of social groups, or referring to groups that are really comprised of a variety of groups, is common among actors. Consistent across actors of both cases is to employ amalgamate terms such as, "developers," "planners" and the "City." This is significant because if we routinely dissected responsibility according to agency, we would have a better understanding of issues and of whom to hold accountable.

Bijker and Law say that we would be overwhelmed if we considered the very makeup of every technological artifact, and it is evidenced in the cases that we take for granted the makeup of social groups or agency by amalgamation. It distances actors from responsibility and points to a form of determinism. If the "City" is responsible, then, not only is there not any particular human to whom we can hold account but, it is as if the "City" has gained momentum over people. Also, it has to do with escaping the assignment of responsibility in the sense of preserving politically correct public relations. To say that the "City" did something, is to free blame from a singular actor.

Bijker and Pinch's definition of relevant social groups is far too narrow for explaining the social construction of mixed-use development. The key requirement has to do with all members sharing the same set of meanings attached to an artifact. Granted, Bijker and Pinch do clarify that identifying social groups by obvious dichotomies, such as

"consumers" or "users," is not the goal and it is necessary to identify less obvious groups. They also clarify that, essentially, actors can belong to more than one social group. A person may be a cyclist but also a teacher.

Cowan has addressed the problem of employing relevant social groups (as defined by Bijker/ Pinch) to explain technology. The case studies here support her analysis that the situation is far too complex for such a prescription; or it at least suggests that analysis is not to end there. She works with a different definition of relevant social groups: those who influence creation, demand, production, diffusion, acceptance, or opposition relating to new technologies.

Both definitions of the terms, as provided by Cowan and Bijker/ Pinch, are incapable of embodying all of what they mean or may mean, but both are effective tools that do facilitate a meaningful analytic process. Bijker and Pinch relate relevant social groups to artifacts. Cowan relates relevant social groups to technologies. Perhaps a reason that both are inadequate in a full analysis of the social construction of mixed-use development is because it is a technological system.

Analysis of the case studies by way of identifying the obvious relevant social groups, inclusive of the amalgamations, is an effective tool for analyzing relationships. Following this logic, in order to approach a full and honest analysis, I employ this idea of "amalgamate relevant social groups." Following the Bijker/ Pinch model, I have included simple diagrams (See Figures 3-4). As basic as they are, they visually highlight fundamental aspects of the cases.

At first look, the diagrams visually demonstrate that the TOD case is fundamentally more in balance than the TND case. The TND case appears in struggle amidst three social groups, as if a tug of war is taking place. The TOD is balanced by four social groups. An unexpected consistency between the visual representation and the reality of the outcomes lies in the ever-important role of the fourth agency, the transportation authority.

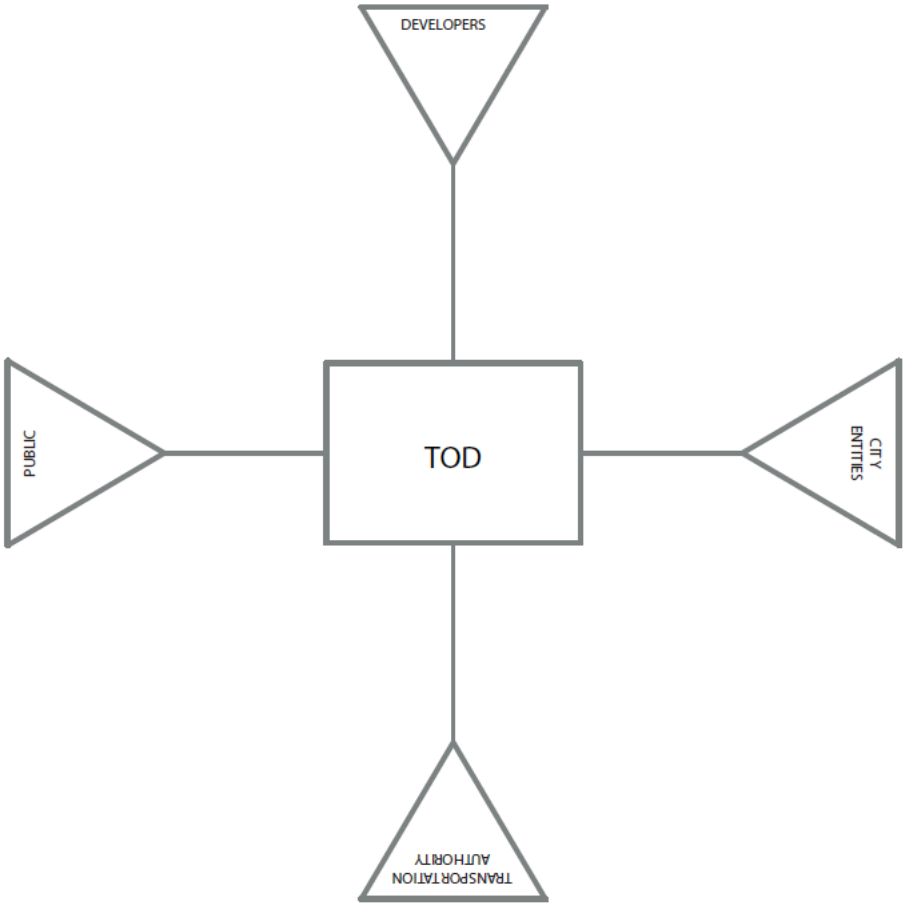


Figure 3: Amalgamate Social Groups (TOD). Representation of amalgamate relevant social groups and how they relate to the technological system of transit-oriented development, following the Bijker/ Pinch model. Source: Amy E. Jones, 2012.

These amalgamate groups represent the types of players that were consistently influential to the project. The titles of the groups reflect the way relevant actors most commonly referred to them. Relevant actors, on occasion, do specify relevant social groups that have been lumped into the amalgamate group.

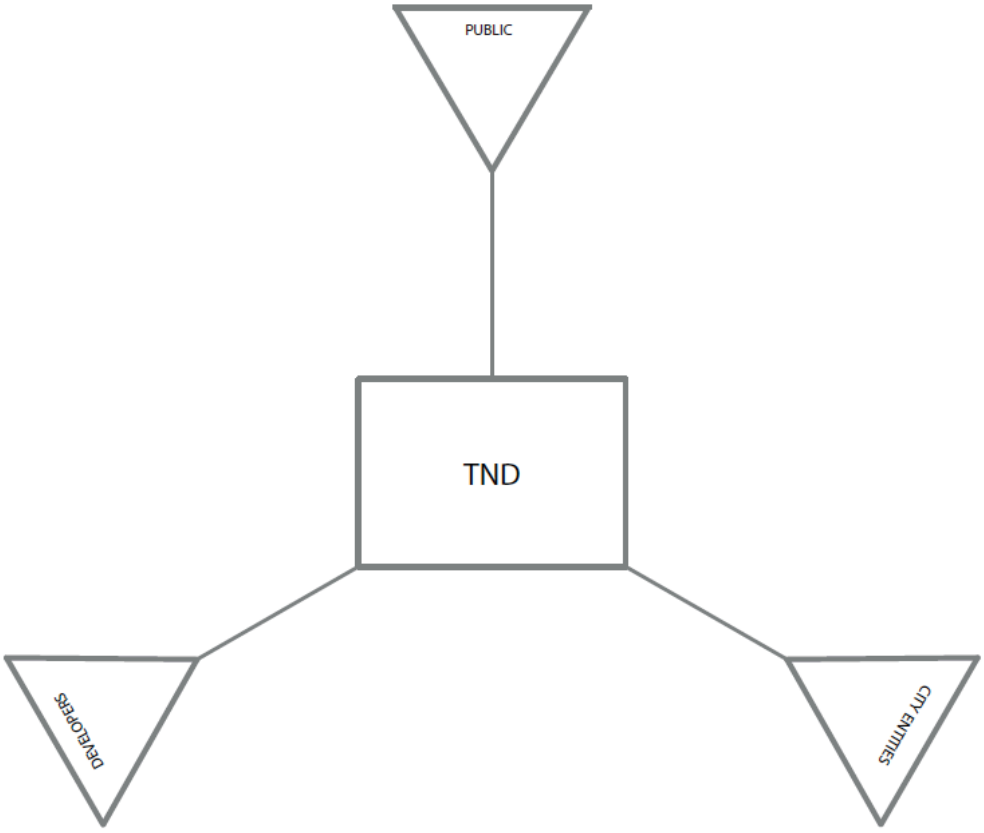


Figure 4: Amalgamate Social Groups (TND). Representation of amalgamate relevant social groups and how they relate to the technological system of traditional neighborhood development, following the Bijker/ Pinch model. Source: Amy E. Jones, 2012.

In the diagram representative of TOD, there are four amalgamate groups: city entities, developers, transportation authority, and public.

City entities are generally referred to as an amalgamate group as "the City" by relevant actors. The groups that comprise the amalgamate group are: the planning and development review department and the public works department.

Developers are generally referred to as an amalgamate group as "developers" and, in the TOD, case include an environmental firm, a single-family developer, an infill developer, and a homebuilder.

Transportation authority is generally referred to as "the transportation authority" and includes single actors and different departments within the organization. Similar as with "the City," the use of this term at times implies determinism.

Public is generally referred to as "the public" and, in the TOD case, included the local neighborhood, consumers, and tenants.

In the diagram representative of TND, there are three amalgamate groups: city entities, developers, and public. Following the same calculus employed to describe the amalgamate social groups relating to the TOD above, below I have designated social groups belonging to each amalgamate group relating to the TND:

Developers includes landowners, homebuilder 1, homebuilder 2, commercial developers, development firm, land design firm.

City entities includes city leaders, consultants, city council, TIRZ board, public works department.

Public includes residential consumers, retail consumers.

Amalgamate groups can be parsed out into a number of groups. Again following the Bijker/ Pinch model, I have included diagrams visually representing the relevant

social groups separately (See Figures 5-6). These diagrams demonstrate that the number of social groups can vary dramatically depending on categorization. They also show that both cases involved numerous influences. The diagram for the TND case demonstrates that there were more relevant social groups, pointing to a more complicated process. Yet, these diagrams only include the social groups that were mined from the data as relative.

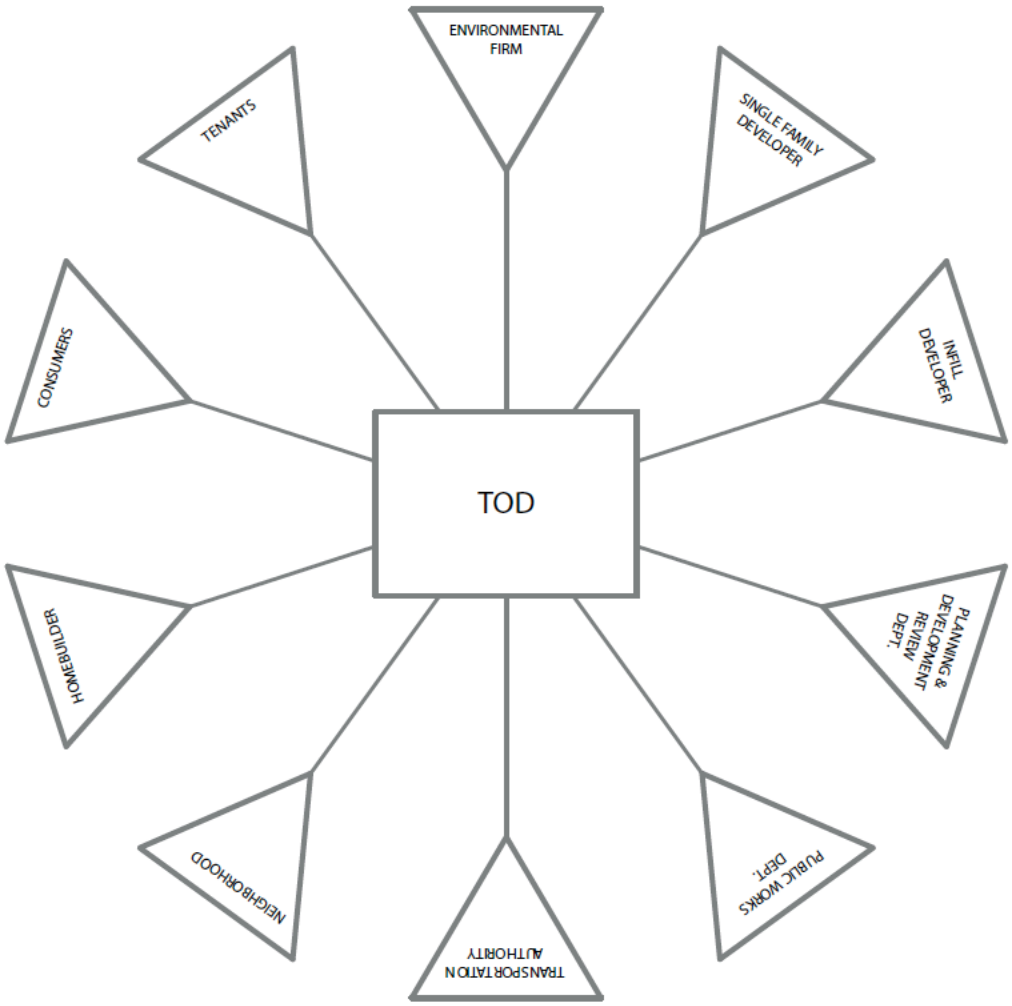


Figure 5: Relevant Social Groups (TOD). Representation of relevant social groups and how they relate to the technological system of transit-oriented development, following the Bijker/ Pinch model. Source: Amy E. Jones, 2012.

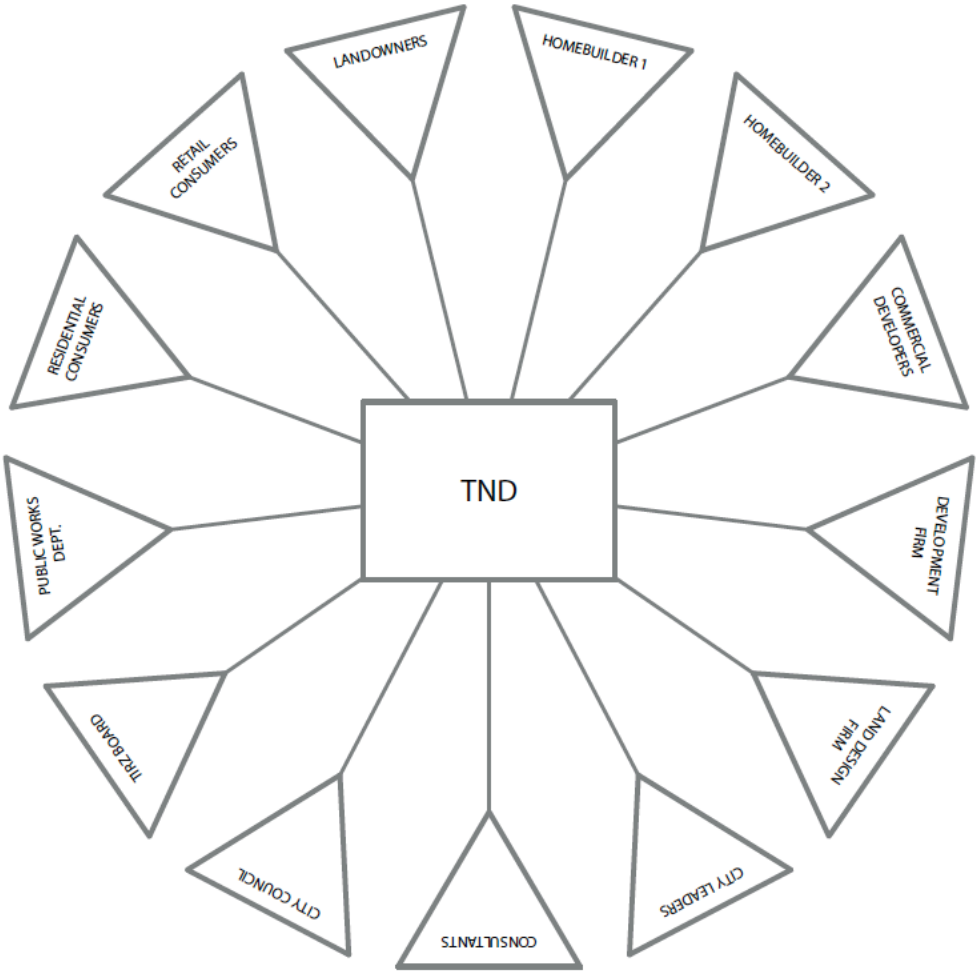


Figure 6: Representation of relevant social groups and how they relate to the technological system of traditional neighborhood development, following the Bijker/ Pinch model. Source: Amy E. Jones, 2012.

What Does Amalgamating Indicate?

The designations in the diagrams help to illuminate the difference between what actors say and what they mean. To explain, in order to create the diagrams, I first identified all of the relevant social groups listed. I then looked for relationships to decide which relevant groups belonged in a amalgamate group, based on the interpretations of the actors. Generally, when actors refer to the public, they are including users and

consumers. Actors may or may not be doing this consistently by intention. The frame of interpretation can shift depending on the actor, and depending on the context. This leads to the first item that an analysis of the amalgamations may help reveal.

Masking

Terms indicating amalgamate groups, often coupled with covert language, masks what actors will not say in public. For example, a phrase such as "market forces made it financially burdensome for the developers," might really mean something else. On one hand, it can mask the interests of the actor saying it. On the other hand, it goes back to this idea of detaching responsibility. Actors do not want to say, "Well, such and such developer couldn't come up with the money/ couldn't get the loan/ screwed up their ROI." Politics are in play, and it is a risk to private actors to "call out" or accuse the actors associated with city government. One actor noted that there were not any channels for negotiation and that all the group could do was submit to "the City." (This echoes what Winner said about public disenfranchisement being eminent when democracy is absent from the construction of technology). In Texan culture, it can also be a manifestation of politeness in public talk. How actors discuss the issues in public are likely not the same as in private.

The nuances of these relationships may point to a way to get at identifying how actors "know." By unmasking information, and paying attention to less obvious groups, illuminations about tacit knowledge may be revealed. Tacit information would be interpreted, by the actor, as implied, understood, or "known."

Less Obvious Relevant Social Groups

Developers in both cases were caught off guard by influential factors that affected their bottom line. New city regulation impacted the developers of the TOD, and TND developers were caught off guard by a new mall. This begs the question if developers were doing their due diligence. For the TOD, it calls into question the role of honesty and transparency on behalf of the City. Similarly, values are called into question on behalf of the City in their partnership with the TND development in that they were extremely unreliable and inconsistent to the degree of negligence. These aspects highlight issues of trust and risk in entering into a public-private collaboration.

In the case of the TND, never was a clear picture painted as to why the city actors backed out of their plans in such an extreme manner. We can speculate that it had to do with, a) realizing the project was not meeting expectations and would no longer be an ideal location (the commercial components were not gaining momentum), and b) there were damaged relations so they wanted to distance themselves. But what forces were going on behind the scenes? What less obvious, if not "invisible," groups were weighing in on influence? Hall talks about this uncertainty, as many actors wear many hats, and there are always unknown relationships.

Utility companies were scarcely mentioned in the overall construction of the technological system, yet they played a major role while there was a problem. In this way, utility companies may qualify as relevant social groups during the construction of a particular artifact. They do not necessarily qualify as a relevant social group for the construction of mixed-use development as a technological system overall.

New Urbanism is not represented by a group at the table, per se, but characterizes one frame that any actor of any given social group can employ at any time. While New Urbanism was readily acknowledged and considered by the actors, there was not a human representative of New Urbanism directly involved in the planning and implementation process. This suggests that frames associated with New Urbanism are aligning across discipline. New Urbanism is recognized as a social movement. Actors belonging to the relevant social group of New Urbanism- in the form of a movement- dually belong to other relevant social groups active in the case studies. *Why is it we succeed in giving New Urbanist actors agency, but we fail to recognize other movements or philosophies to which actors may belong?* Capitalism and democracy have long organized and mobilized actors and relevant social groups.

So then the question becomes, *What social groups influence the outcome but are not present at the table?* This leads me to explore the idea of tacit social groups.

Tacit Knowledge

The history of Texan cities reveals a deep relationship between developers, real estate agents, and city actors. Historically, relationships have emerged in a variety of roles somewhat escaping of the way we would categorize them today. But they, in some way, represent a group because the thread of the relationships between these actors is so strong and consistent over time. It suggests that developers, real estate agents, and city actors, align tacitly as a relevant social group, despite categorization by actor titles.

If we accept Hughes' idea that social agencies can gain momentum, and Walters' idea that typologies are urban and social, it is possible to conceive of the formation of a

tacit group around mixed-use development. Actors align around interests of development and capitalism, sharing a tacit meaning of development artifacts.

It is possible that the types of actors involved in development (whether public or private) form a tacit relevant social group, so complex and so deeply and historically formed, the group is nearly unidentifiable, or "off the radar." This can be further supported by acknowledging all of the tacit knowledge that has been embedded in the agencies of actors through hundreds of years under American capitalism; that the actors, perhaps unbeknownst to themselves, form a tacit social group. This would lend to a socio-technological momentum.

Going Forward

The ideas presented in this analysis can be good "food for thought" in going forward, so as to keep present the spirit of not taking relevant social groups for granted. To analyze the case studies and reduce it to a discussion using certain terminology is a helpful tool, especially when we have opened the lid on the black box of the terminology itself.

In sum, I discovered a terminological inadequacy in the analytic method. I needed new terms to discuss my findings (it is possible that these terms exist elsewhere but they are not currently in my "toolbox"). There is the tool of using an interpretive frame, which is similar, and will be employed going forward. However, the idea of the amalgamate social group is not the same as a frame of interpretation because it includes the way other actors are categorizing the group. The amalgamate social group not only

captures multiple groups that have been lumped into one, but the idea of how groups relate to and identify each other.

ANALYSIS BY WAY OF CODES AND CATEGORIES

In this section, I explain in detail how I analyzed data for the creation of codes and categories. Subsequently, the sections that follow are organized in relation to the categories created. In these sections, I first discuss the implications of the creation of the categories themselves, since the relationships between codes that create categories offer analysis in their own right. I call these "technical analysis." I see these observations as having to do with the more "technical" aspects of the coding process. I think of them as looking at the coding of the data from the "balcony." After that, all of the sections are in-depth analyses having to more with the details of the content. I think of those sections as looking at the data from the "dance floor." Those sections are in-depth discussions of the categories, more representative of a content analysis of the findings.

Discussion of HyperRESEARCH Analytical Method

As discussed in Chapter Three, I coded all data resulting from the interviews of both case studies by using the HyperRESEARCH software. After coding all data, I ran the HyperRESEARCH frequency report generation tool. As a result, forty-six codes emerged with a total of 1,187 code instances. From the report, I saw that six codes were the most frequent for the overall data, inclusive of both cases.

Specifically, the frequency report revealed the following six codes as most collectively frequent:

- Market forces (107 instances)
- Built landscape or environment (107 instances)
- Site planning/ process (98 instances)
- Public-private (80 instances)
- Consumer expectations or amenities (54 instances)
- Adoption (63 instances)

I also used the frequency report generation tool to see what codes were most frequent for the cases individually. Interestingly, the same six codes were among the most frequent for both cases (Appendix B).

A few of the codes that occurred with a high frequency I threw out. For example, because one of the original aims of this research included a focus on sustainability, I had asked direct questions in regards to it. Therefore, I felt the frequency of codes related to sustainability were created by my own intention, by using leading questions, and thus not as valid. I wanted to focus on the information electively offered by the informants. I prioritized data that was gathered by way of open-ended questions and by way of information that was offered by participants more by their own choosing, reflecting more of what was perceived by them as important. For instance, much of the data reflects free-flowing dialogue between informants, where the informants carried out discussions more specific of content proposed by them, after the introduction an open-ended question.

Another type of code I threw out was one pertaining specifically to the context of the case study. As you will see reflected in the code frequency reports, the code "TOD planning" appears for the TOD case, and the code "TND planning" appears for the TND

case. There is also the code "mixed-use development" for both cases. All of these codes were based on data arrived at by us asking the informants to offer their definition of these aspects. All data, including data coded by codes that were thrown out, was still considered in the analysis, but I did not see them as valid to represent themes and categories. In the end, all of the data is connected, and cannot be unwoven. There are many ways one could organize and analyze the data.

There are a few codes of high frequency that did not fall into the named six codes of high frequency deserving of attention. I will talk about the significance of the deviant frequencies per case, but I go forward in analysis relying on the six most frequent collective codes (absorbing the deviant high frequencies) for the purpose of creating categories and conducting overall analysis. I see this as justifiable for a number of reasons. First, as mentioned, I will address their significance. Second, they, in effect, still get discussed directly or indirectly. Even when conducting analysis based on specific codes, it still requires considering the data that came before, for example. Third, I discuss each case separately in relation to the categories. Lastly, as I will explain, the richness of the content reflected by the six most frequent codes, and the relationships between them, offered stronger insights for the overall work, as opposed to the deviant codes on their own.

Significance of Deviant Codes

The three high frequency deviant codes worthy of discussion are "regulation," "actor influences and investment," and "challenge or conflict." The code "regulation" had a significantly high level of frequency for the TOD case and a significantly low level

of frequency for the TND case. This reflects data, representative of the TOD focus group interview, where participants discussed several regulatory issues at length. The heated issues represented by the code's frequency are detailed in this work. And, in general, data associated with this code is incorporated throughout the analysis that follows.

The code "actor influences or investment" has a significant frequency in the TND data but not so much in the TOD data. Because the frequency was not high enough on the TOD end, I did not want to include the code in the categorization process. However, data represented by the actor influences or investment code surely comes out in the analysis of the second meta-category, and particularly in the analysis of the TOD project.

The code "challenge or conflict" has a high level of frequency for both cases, but not in strong enough relation with the other codes to help effectively build a category. The nature of the thesis dictates that conflict will be highlighted. Dually, the second-stage of the Bijker/Pinch methodology (which is to identify and describe points related to closure mechanisms) will address conflict specifically. (This is also where I address some of the mentioned regulatory issues of the TOD). The data coded "challenge or conflict" largely overlaps with data as coded by the six most frequent themes. While the code served as a tool to help me revisit where conflicts may be found, it served me more as a flag for locating where within the data the crux of the issues lay. Just because I had assigned certain data with a "challenge or conflict" code did not mean I could go back and extract a one-sentence statement characterizing a conflict. As this thesis demonstrates, nothing about the mixed-use development planning and development

process is that simple! The complexity leading to a challenge or conflict is embedded in the relationship of the data overall.

SUMMARY OF MOST FREQUENT CODES		
Code	***Frequency***	
	TOD	TND
Market forces	40	67
Built landscape/ environment	46	71
Site planning/ process	40	58
Public-private	37	53
Consumer expectations and amenities	16	48
Adoption	32	31
Deviant code		
Regulation	23	4
Actor influences or investment	11	27
Challenge or conflict	29	18

Table 3: Summary of Most Frequent Codes. Source: Amy E. Jones, 2012.

Most Frequent Codes and Category Creation

The six most frequent codes are: "market forces," "built landscape or environment," site planning/ process," "public-private," "consumer expectations and amenities, and "adoption." Below, I explain the meaning I understand the codes to encompass.

Market forces has to do with data revealing market forces as defined by the respondent or instances of economic factors influencing development or decision-making processes. Also within market forces there can exist implications on behalf of the respondent associated with financial responsibilities upheld or not upheld by themselves or other parties.

Built landscape or environment has to do with data revealing information specifically discussing processes and decision-making with the intention or outcome of factors directly associated with the built environment.

Site planning/ process has to do with data revealing information specifically associated with design and planning and development processes and can include instances of collaboration and multi-stakeholder decision-making. It refers to physical design as well as social processes.

Public-private has to do with data revealing information specifically highlighting the relationship between the public and private realms of planning and development processes.

Consumer expectations and amenities has to do with data revealing information about how respondents view public desires and how that plays into decision-making. It also includes information associated with those physical amenities (such as access to services or environmental features such as lakes or ponds) that are debated by various respondents to be important or unimportant to consumers.

Adoption has to do with data revealing information about the adoption of new ways of doing things. Significantly, this is associated with how different stakeholders,

varying from developers to the public, perceive and/or receive new technologies, ways of urban design, architectural typologies, marketing strategies, or anything related to the mixed-use development process for any actor.

Upon further analysis, my understanding of the relationships and connections between the codes developed. Interestingly, of these six codes, three are closely linked to each other, as well as, the other three are closely linked to each other. Thus, the analysis and discussion that follows, I have separated into two concepts:

- Concept 1: adoption, market forces, and consumer expectations
- Concept 2: built environment, site planning/ process and public-private

Each of the three codes comprising the concept is significant enough on its own to remain independent, yet there is too strong a relationship between them to be ignored. That is to say, while the thematic information of each offers unique insights, the three are so closely correlated that it is not quite possible to talk about one without inclusion of the others; they cannot be efficiently separated. Upon further analysis of the content to which these categories point, I created categories. Thus, the categories become:

- Category 1: Socio-economic frames of interpretation
- Category 2: Public-private modes of implementation

In what follows, I parse out analysis based on these two categories. I provide discussion about the relationships between the codes, what I coined earlier as "technical analysis." Then, I discuss each case study through the frame of the category, also offering a preliminary analysis associated with each. At the end of each category section,

I offer a comparative analysis of the two cases before moving on to the next mode of analysis, the Bijker/ Pinch social construction methodology.

Category 1: Socio-economic Frames of Interpretation

Technical Analysis from Coding Process

This section describes the relationship between the data coded as adoption, market forces and consumer expectations. In some places, the codes are discussed independently. In terms of code instances, consumer expectations almost always correlates with market forces (but not vice versa) with little exception, and, in many cases, is linked to adoption. Almost every instance of market forces is closely linked with adoption and/or consumer expectations. Adoption, however, is a strong enough theme to be talked about on its own and the same is true for market forces. Market forces almost always connects with consumer expectations.

Some cases pertaining to the link between market forces and adoption I lump under adoption, and in the market forces section I parse out instances where it specifically deals with consumer expectations (or not). Consumer expectations falls under market forces as a sub-theme, except from the planner's perspective, in which case, it is the city planner "wanting" an outcome. That is to say, consumer expectations is listed with market forces but market forces do not always include consumer expectations.

A bottom line here is that consumer expectations almost always falls under market forces with little exception, and in many cases, either way, it is linked to adoption. But, in some cases, consumer expectations and adoption are not so much about market forces, but can be tied together in the sense of the city planner "predicting" or pushing for

certain aspects, where there is a market for them, even if relatively small (such as a bus stop or bike trails). From the planner's perspective, it has more to do with a relationship between adoption and expectations, and from a developer perspective, it has more to do with market, adoption, and consumer expectations. In almost every instance associated with a developer, consumer expectations had to do with market forces and many times adoption too. This is mostly true for everyone interpreting from a development frame.

Specific to TOD Case

The theme of adoption frequently appeared with the themes of public-private relations and regulation (and market forces and sacrifice) for data connected to the developer perspective. That is to say, the developer is faced with the challenge of adhering to new city standards, in relation to mixed-use development, that the public is not necessarily ready to adopt from the perspective of the developer. In regards to new, mixed-use standards, one developer expressed that s/he feels it is the City that is, "pulling us along as opposed to the people pushing it up."[254] The City is pushing for relevant social groups to align around a new type.

Mixed-use codes requiring new mixed-use development to pull buildings up to the street can cause a great challenge for the developer. The developer is put into a position to sacrifice parking, as a result, which compromises the public's ability to access

[254] "Confidential Interview with an Actor in the Private Sector," Face-to-face interview, March 23, 2011.

the retail sections of the development. "Pushing the buildings up to the sidewalk hurt the project."[255] The developer interprets adhering to standards as losing money.

Another issue associated with this is landscaping. A developer claims that city planners are fond of landscaping but that it just gets in the way of the public accessing services, and that people generally walk through it and trample it. "It looks great and everyone's like, man that's one of the best looking centers I've ever seen, but it's not practical- aesthetics versus practical- not to that degree."[256] The opinion of the developer is that people do not care about such amenities, that they only care about parking as close as possible, accessing services as quickly as possible and how much services cost. The developer might be masking his profit interests by the will of the public.

The developer also recognizes that they could have situated the commercial area differently for better results: "We shouldn't have built commercial space in that area, I don't want to ignore that. We built retail and office space, I don't think our timing was terrible, it is an emerging area, there's not a lot of new businesses going in." Thus this developer acknowledges that they did not totally "miss the mark," evidenced by a non-traditional, "edgy" neighborhood that does not follow the model of putting the parking directly in front. Dually, the developer acknowledges market forces, resulting from "the worst recession since the 30's," as an important factor contributing to the outcome, and

[255] Ibid.
[256] "Confidential Interview with an Actor in the Private Sector."

believes, that, in the long run, the development will eventually reach commercial capacity.[257]

A developer says s/he favors the concept of these types of commercial design standards, such as designing the layout of development projects to include parking to be in the center of the complex, as s/he has seen them work in other cities. The developer reports that the challenge is in being the pioneer to do so, under the new standards and the transition involved in competing with extant projects built before standardization. One developer says:

> What's hard about it is being the first guy, I'm not saying we were the first ones to ever do that. I don't want to say that we were the first ones here to do it, what I'm trying to say is this project […] that we built competes with brand X down the street that was built 5 years ago and didn't comply with that. All those retail centers around we compete with those you know.[258]

This developer also attributes this to the fact that the public simply likes the apartments. Given the growing population and rising gas prices, there is a demand for this type of housing. Whether people buy into the "work-play" concept, for example, is overshadowed by consumer demands for nice, "class B" housing with accessible amenities. The developer reports:

> I speak to them when I walk around the property, I'll stop and talk to them and they all want to know is there going to be a coffee shop a sandwich shop. They want the basic services. They'd love to be able to walk across the street and grab a coffee. I think a lot of people want that; it's just a product itself.[259]

---

[257] "Confidential Interview with Actors in the Public and Private Sectors."
[258] "Confidential Interview with an Actor in the Private Sector."
[259] "Confidential Interview with an Actor in the Private Sector."

One planner, who volunteered s/he is invested in the principles of New Urbanism, recognizes the process of adoption among the public. This planner named the aspect of density, for example, and acknowledged that there is a social aspect of acceptance that must take place. This planner is talking about density in relation to TOD, and says that there is a social stigma associated with riding the bus, riding a bicycle, or walking, but that when the activity is embraced by a certain percentage of the population, then the stigma begins to go away. This planner sees TOD development as way to encourage the shift of more people accepting it. The demand for TOD and walkable, urbanist communities, is higher than the supply, so currently they are more expensive to build. As more are built, they will become more affordable. That by constructing the environment to support it, naturally more people will live that lifestyle and thus it becomes a more viable form of development all together. This planner is exercising an interpretation based on his/her New Urbanist frame in the face of opposition to new mixed-use technology. Dually, the planner is likely appealing to adherents of capitalism, perhaps developers, by using a supply-and-demand logic.

This planner acknowledges that the design process is still challenging, since all groups are not necessarily in consensus in regards to design principles, and even if all are in consensus, designing a seamless mixed-use environment that supports transit, walking and biking, is challenging from a design perspective. In addition, balancing the parameters of regulation and reality require detailed negotiation. This planner, who offers s/he belongs also to New Urbanism as a group, is working to align frames of interpretation. Through the negotiation process, the planner hopes to deliver the message

of New Urbanism, so that actors belonging to other social groups can align and assign a common meaning to mixed-use development.

The planners involved with the development of the TOD concur that introducing new ways of doing things can help set the stage for how planning and development might be done in the future in a way that makes sense for an entire corridor. Overall, there is consensus that public and private arenas are supportive of new lifestyle choices. The planners see that relevant social groups are aligning in support of a typology that is gaining momentum.

Specific to TND Case

Actors representing both the public and private realms associated with the TND project agree that there is no general understanding of what mixed-use development or TND is. One developer claims that, from his/her perspective, the physical design of development should speak for itself, yet the typical homebuyer generally has no ability to visualize how amenities and landscape offer an added value to the consumer. A lot of public talk would be required to approach an alignment of these actors' frames.

Because consumers did not understand the concept of mixed-use development, or TND, they chose to support a different market. There were other large-scale competitive projects on the market at the same time that won the favor of consumers. The homes in the competing markets did not offer amenities pertaining to the overall infrastructure, such as parks and trails. They did offer what the developer calls "conventional

amenities"[260] such as a pool and/or clubhouse. For comparable spending, the consumer might prefer to buy a house with a big backyard where they can put in their own pool or another amenity of choice. As the developer put it: "That is what they perceived as value. So we absolutely struggled from the margin standpoint, certainly an RI standpoint, and most certainly a velocity standpoint."[261] Developers gauge calculations based on the perceived values of consumers.

Those involved in the development of TND had invested thousands of dollars per acre. Therefore, the developer struggled from volume and margin standpoints for several years, until adoption occurred. The developer explained:

> Then all of a sudden, it started to become attractive. Not necessarily from a margin standpoint, because we're still making a lot less per house here than we would in what I'd call a conventional subdivision, but from a velocity standpoint, we're doing pretty well. And the reason is, people all of a sudden get it.[262]

Developers may adjust their frames of interpretation if the consumers adopt a new technology. When technologies become attractive to consumers, developers follow suit.

A planner from the public realm attributes the slow adoption to several factors. Firstly, s/he pointed out that when the development first opened, there was a lack of retail and other uses beyond residential use. Additional retail development has since been constructed. Secondly, the planner also points out, that, "people had gotten used to seeing this product."[263] And, thirdly, the planner mentions that the completion of the toll

[260] "Confidential Interview with Actors in the Public and Private Sectors."
[261] Ibid.
[262] Ibid.
[263] Ibid.

way had a huge effect on demand in the area. Adoption on behalf of consumers created typological momentum.

Previous to these developments, mixed-use development was non-existent in this city, which is characterized by a suburban typology. One of the designers brought up the point that the TND project was intended to be a prototype, of sorts, meant to introduce this type of development to the public. An actor representing the City shared, from his/her perspective, that the aspect of creating a prototype was not a major factor. The City was willing to make an investment, and did so by committing to the reimbursements (with the tax increment financing method). The City was willing to do it with this one piece of land to see if it worked. The actors are not in agreement about the ability for one typology to gain momentum over another.

The actors involved in the project are in consensus about there being larger influences at work. They recognize that new trends, or new ways of doing things, are emerging both locally and nationally. This is the reason they were open to attempt a mixed-use development featuring TND-style housing in the first place. While all actors are in consensus that, in an ideal world, it is "good" to make a move towards "better" practices, such as sustainable ones, they have different viewpoints that led them to this thinking. For example, the developer has an interest in homes that are energy-efficient, while the designer envisions improving the world, at-large, through planning and developing more sustainably. The actors demonstrate the continuation of the ongoing discourse around neighborhood theory and town planning that has been going on for over a century.

In previous endeavors, the developer attempted to market energy-efficient features such as increased insulation and solar panels. The developer has since stopped doing so because they did not sell. From the developer's point of view, consumers are not ready now, but they will adopt such features and amenities in the future. S/he states:

> We, as a country, if not a world, are going to figure out how to sustain ourselves. Over time we're going to drive cars that emit less hydrocarbons […] I just think there's a lot of ways you can do this. I don't really think that this project, quite frankly, is any more sustainable than a subdivision that's a mile and a half away that's a typical conventional subdivision. I just think that we can say those words, but, this house- we definitely build our houses to a pretty high energy standpoint- but this one isn't built to any higher standard than what we build in a conventional subdivision. So, because it all has to do with cost. People will not pay for sustainability.[264]

The developer has been taught that sustainability does not sell. This is how the actor "knows" the "public" is not ready for the adoption of sustainability features.

The actors concur that policy decision-makers, urban designers, and developers alike, are all grappling with how to balance "the current realities of the three-car garage." They are in consensus that something is going to have to change about the world in which we live. As one designer put it:

> We know that we're spending too much time in the car, whether its commuting, or the diabetes and obesity and those sorts of factors in our lifestyle, and just non-sustainable development, the cost of it, and so we see this view of what it could be, and certainly locations where it's more successful, and, in Texas, it's just really hard for us to reconcile that.[265]

Actors are grappling with how to un-do the momentum of a suburban typology. They want to re-open the lid of the black box. Actors agreed with the designer that there is

[264] Ibid.
[265] Ibid.

something different about the Texan point of view in regards to this: that Texans are resistant to change, particularly when it is associated with homeownership. Texans tend to fence off the boundaries of their land. Not all other people do this and therefore there is a cultural value that plays a role in the consumer's point of view of development, of buying land, and of buying a home. At the same time, the group is in consensus that even this strong "Texas Spirit" is in the midst of change. The actors recognize that frames of interpretation are shifting.

Comparison of Cases

In both cases, a theme is that adoption on behalf of the consumer is a key process that has been happening over time and continues to happen. There is consensus that there are different types of consumers. Some consumers reject the idea of a mixed-use typology, some embrace it, some used to reject it and now embrace it, some are in the process of embracing it, and some might never embrace it. Here are comments from different actors representing both projects, demonstrating nearly identical points:

1. The reactions that we get from the people who walk in now are different than they were before, because now they go, "Wow this is really neat," and before they were like, "Why would I want to live here?"[266]

2. The problem was there was a huge resistance at the front end because people didn't understand the concept. In fact they'd come in and they'd go, "You know if I wanted a house like this I'd buy in [an established traditional neighborhood].[267]

3. Users were not enamored with the traditional neighborhood development. There aren't a lot of places it has worked and because it cost a lot of money there was no desire from anybody in reality except maybe somebody on city council.[268]

---

[266] Ibid.
[267] Ibid.
[268] "Confidential Interview with an Actor in the Private Sector."

While there are varying interpretations among amalgamate consumers, there are also varying interpretations among the actors involved in the planning and development process. There is a struggle among actors to balance market forces with the expectations of the consumer, and to push things in a desired direction (or not). Planners and designers tend to be pushing for development of the new typology, based on new ordinances and/or personal investment. Several planners and designers express that they have been influenced by the principles of New Urbanism, and have bought into them, and that they work to uphold them where possible. Other actors have personal beliefs based on experience abroad or on another personal investment in something specific, such as biking. Frames of interpretation appear to be approaching alignment in New Urbanism.

There is consensus as to the conditions that set the stage for the occurrence of the adoption processes. There is consensus that new development is happening within the context of larger societal change. For mixed-use development, various actors acknowledge that we are living in a time where a portion of the population recognizes factors, such as health (as a result of the built environment) and rising gas prices, as important in determining personal decision-making, e.g. where to live or what type of housing or development typology they choose. There is also consensus that there is a portion of the population that does not acknowledge such factors and they are not ready for new kinds of development. They see that this could be the beginning of a shift towards a new way of doing things- a technological adoption that affects the way planning and development is being done and will be done. Across both case studies,

actors are in consensus about the process of adoption, but not in consensus about the relationship between market forces and adoption. This can likely be attributed to the fact that it is a comparison of one basically successful project and one basically failed project.

Conclusion

The intersection of market forces and consumer expectations has to do with making decisions that satisfy consumers' perceptions of what is valuable. Some market conditions discussed by the actors do not directly correlate with consumer expectations. This usually had to do with "behind-the-scenes" processes among heterogeneous stakeholders, and especially between developers and consultants. For a homebuilder, some decisions are made strictly based on satisfying the shareholders, not the consumer. This points to the possibility of influence on behalf of "invisible groups" or "tacit groups."

Overall, analysis by way of the category, Socio-economic Frames of Interpretation, supports the idea of typological momentum. Relevant social groups are constructing a shared fact that adoption leads to momentum. Even in the face of an obdurate suburban typology, actors acknowledge that a new typology will gain momentum if introduced. Whether decisions are made with or without direct acknowledgement of consumer expectations, it is a matter of time before certain practices become adopted. In turn, the adoption of those practices will then affect: the market, consumer expectations, and future decisions. It is a cycle that reinforces itself *and* the technological types associated with decision-making and practice.

Category 2: Public-private Modes of Implementation

Technical Analysis of the Coding process

Where the codes, "site planning/ process," "public-private" and "built landscape/ environment," intersect, information in regards to relationships, communication, and the decision-making process among public and private stakeholders, leading to physical realities, is revealed.

In at least one instance where the code, built environment, was listed, but was not connected to either site planning/ process or public-private, I did not necessarily include that data below. Also, there is an instance where part of a section of data was coded as built environment, but the section that included that data had also been coded as adoption. I did not discuss that piece of data below, but omitted it since it has already been discussed in the first meta-category.

Interestingly, there was more overlap in content between data coded built landscape/ environment and public-private within the data associated with the TOD. Meanwhile, there was more overlap in content between data coded built landscape/ environment and site planning process within the data associated with the TND. A possible interpretation of this is that the overlap in the TOD coding represents more focus on the collaborative process among actors, in which they arrived at a relatively successful built product. The TND overlap in codes could represent not only a lack of public-private communication, but it evidences the breadth of time and resources spent on the design process- and multiple re-design processes- in which they arrived at a largely unsuccessful built product.

Specific to TOD Case

The private-public partnership between agencies involved with the planning and development of the TOD entered into the negotiation process with somewhat balanced expectations and resources. Both sectors envisioned a similar outcome. To some degree, relevant groups assigned similar meanings to the project. The local transit authority had identified the project as a stop where they wanted to locate a station. The authority also identified that they wanted to create bus access through the site. The City had previously identified the area as a transit district based on the transit overlay. Private developers felt that they needed a station on location in order for the project to be successful.

As plans progressed, developers realized they needed to approach the City to sort out some of the details and expectations. They needed to negotiate in regards to the TOD zoning, as the City will allow some bending of beneficial regulations as a way to encourage density and TOD. For example, the City might relax some of the parking requirements. They were also in communication with the transit authority about getting a stop on site. According to one developer at this junction:

> So, the design was evolving, we were in one of those stages there in your flow chart, we were kind of going in circles refining it. Saying ok, what is a TOD? So we worked out these zones, you know the midway zone; basically we were phasing it out from the stop.[269]

It was mutually decided by the developers and the transit authority that the stop would be located where the rail line intersected with the main road; it worked for both parties. The multi-family/ commercial developer realized that, in this context, they

[269] "Confidential Interview with an Actor in the Private Sector," Telephone interview, March 30, 2011.

wanted to expand the density near the rail stop, now that the location had been determined. In other words, they determined that the area closest to the stop should be mixed-use, transition into high density/ multi-family, and then transition into single-family. The push for actors to negotiate during the design phase can evidence that relevant social groups need to approach a shared understanding of the compromises that are in flux. In this case, relevant social groups were successful in coming together and avoiding a communication breakdown. They successfully aligned around a common goal.

While the TOD planning and development process boasts multiple collaborative and equally agreeable moments (particularly at the front-end), still, developers "had a ton of hurdles with the city."[270] These hurdles had to do with limitations or expectations that the City enforced via code and regulation. The biggest issue was parking as it related to building frontage on the street, as opposed to parking in the front. In this case, actors could not align because there was not a channel for negotiation.

This ended up to be a significant sacrifice on behalf of the developer. It was not something the developer had anticipated in the design plans as well as the developers predicted it would damage the economic viability of the commercial section. One developer talked about this issue:

> Over and over we're hearing, "Where's the parking?" It's like, well, it's in the back, it's in the garage. But retailers say, "Man, if you don't have parking up front […]." Maybe it's a real thing or maybe it's not, but the market is telling us that you need parking in front.[271]

[270] "Confidential Interview with an Actor in the Private Sector."
[271] "Confidential Interview with an Actor in the Private Sector."

The developer states that s/he "knows" by what the market is "telling" him/her. Retailers assume the position that some aspects of suburban typologies have gained so much momentum that consumers expect them to be incorporated into a new typology. One actor summed up the TOD planning and development process on a rather generous and optimistic note:

> I think, in my experience, it's a journey; it's a process. From when we started the ideas we have, the interaction between ourselves, as the urban designers, and planners and architects. Our client- who is very knowledgeable themself- and [the local transit authority] and the City had a lot of input. We had neighborhood meetings and a lot of other things that had input, so it's a process. But I believe the end product, you know, the product of the vision and actually thinking it's better for long run because it's not any one individual or any one group's vision.[272]

Collaboration across discipline, coupled with a process open to feedback loops, constructs a material product that embodies the input of heterogeneous social groups. This material product, a technological system, is different than it would have been if it were socially constructed by one relevant social group. The planner infers that the mixed-use development will possess a lasting quality by nature of it being constructed by multiple groups.

Specific to TND case

The site planning process and public-private relationship associated with TND project is characterized by a lengthy history and the involvement of numerous heterogeneous actors. Seeds were planted, at the front-end, by two actors considered to be the two leaders. While the vision(s) of these two leaders were not wholly realized,

[272] "Confidential Interview with an Actor in the Private Sector."

and, in fact, the two actors were not involved in the process beyond the initial stages, the seeds they originally planted gained momentum and continually impacted the process and the outcome of the physical design.

One of these leaders, from the public sector, can be credited with the promotion of a pioneer development. This leader had the pull from within the City and was able to get the City on board as well as promote unconventional development ideas to private partners. Primarily, this actor envisioned the City to have a downtown area with supporting amenities. According to one stakeholder, this leader:

> Really strongly supported the [project] and I think that if [s/he] hadn't been around this would never have been planned as a traditional neighborhood development because [s/he] really understood the concept and was able to convince the powers that be in [the City] that this was a good idea at the time.[273]

The other leader, from the private sector, can be credited with planting the seeds for a mixed-use development to include traditional neighborhood development. This actor was experienced and respected in the areas of development and creating communities and was able to work with a variety of collaborators. The original landowners had acquired the land with the intention of developing the 479 acres. Based on other work they were in the process of implementing nearby, they were likely going to follow suit and mimic that development. They were going to design a built environment with a proven recipe for success: strip commercial with traditional suburban housing. In the words of one of the original landowner-developers: "The logical way to develop it at the time would have been single-family residential with maybe 300 feet of

[273] "Confidential Interview with an Actor in the Private Sector."

commercial."[274] In reflection, from the developer's point of view, had they done the development that way, they "would have been in and out of the project within 6 years."[275] Actors learn what they know by what has proven to work. For these developers, the proven typology is a suburban one.

As the partners did their due diligence in the creation of a physical design plan, the feedback they were getting from the City was that it was lacking a downtown. When the partners created the first version of their plans in 1994-95, they did include something akin to a town center. Traditional neighborhood development was not necessarily part of the plan yet, but they do admit catering to the City's desire for the creation of a downtown. Actors know what they know based on feedback that has a lot of currency. In this case, developers knew, at the time, that they had to include a particular technology, although they were not clear on what it was.

The original landowner-developers had expressed to the City that they would need financial support to make this endeavor possible. They feared that the turnover of city staff in the future could leave them in a challenging situation. They saw that the TIRZ might offer some assurance. One of the original actors noted:

> We made it clear if we were going to go along with the City then we needed help from the City […]. The city manager at the time understood that, of course, this project was going to outlast multiple city councils, so [s/he] wanted, or [s/he] suggested- strongly recommended- that we put something in place that would outlast city managers and city council members.[276]

---

[274] "Confidential Interview with Actors in the Public and Private Sectors."
[275] Ibid.
[276] "Confidential Interview with an Actor in the Private Sector."

The fear of the actors demonstrates that they recognize "the City" as a complex entity with shifting actors, groups, and agendas. They know that uncertainty is a risk.

A few years later, another local developer-homebuilder was interested in building a section of single-family development on the area the original landowners still owned. They sold a section of the land for that purpose, thus a new actor was introduced: the developer-homebuilder. It is here that one of the mentioned leaders came into the process. The leader-developer brought in an urban designer with whom s/he had previously worked. The two new actors proposed changes to the plans (the plans that the designer the City had hired had created). Actors come and go, which changes the dynamics and relationships attached to social groups. Sometimes, singular actors can effectively align the frames of groups.

The new plans reflected a TND design scheme. While the new actors were working on them and promoting TND, the other leader, the city actor, was also pushing for TND from within the City. These new plans are the ones still on paper today, with minimal changes. Also, meanwhile, the original landowner-developers were working with other consultants in the formulation of how to design commercial and retail sections. One of the original landowners mentioned that it was around this time that he and his partner had attended a ULI Conference and it had affected the way they thought to design mixed-use development. At the time, there were more actors and groups, than not, aligning around a shared interpretation of the TND typology, through multiple channels. Temporary closure was reached by way of plans on paper.

As part of the TIRZ agreement, the original landowners were supposed to fund certain amenities, such as a bridge, but they were unable to finance it. The new single-family homebuilder financed it. This was in 2005, and the City also made a change based on financial challenges. The City modified the plan to where the events center would not be one of the first things developed, as originally intended. The City was not able to work it out financially. At first there was talk of moving the event center north, and, then, plans dissipated into not having one at all. Thus, the next year, the original developers changed the plan to include additional commercial development. The plans for the event center had occupied much of the area slated for a downtown.

In the end, social momentum was garnered by the motivation and agendas of singular actors who aligned social groups. But passion for certain principles in their perceived purity at the time hampered realistic planning. Turnovers in actors in multiple agencies creates a lack of cohesion- shared meanings cannot be assigned to technologies if the actors keep changing. The fear of developers to trust the City was confirmed, and thus they walked away with that confirmed knowledge, or "fact."

Comparison of Cases

Public-private modes of implementation require sustained negotiation. Actors are technically independent in terms of what they own and what type of development they will do. But they are all going back-and-forth proposing plans and ideas for two related reasons: 1) they ultimately want the overall project to make sense and be successful, and 2) the overall scheme must make sense to the City for any plans to be approved.

Public and private stakeholders, alike, heavily consider the influence of existing conditions. Existing conditions have to do with the built environment that is in place as well as the types of development uses and amenities near the proposed development. New development is planned in relation to what already exists. In both cases, proximity to a grocery store was specifically considered as an influential factor. Stakeholders formulate the expectation of success based on the location of the proposed development in relation to other development. The risk is that a "product" might fail simply because it is not located near enough other, or the "right," amenities. As a way to counter this, one developer said s/he and his/her firm, "structured it very defensively, we spent a lot of time on the architecture." Neighborhood/ community opposition largely influenced the outcome of the physical design in terms of: a) no power center, and b) no connectivity.[277]

In both cases there are influential leaders who have influenced the design and vision at the front-end of the process, attempting to encourage a certain vision. Whether this vision is realized or not, the outcome has been shaped by their influence. Actors acknowledge a level of comfort in dealing with colleagues with whom they have previously worked. For the implementation of both projects, actors were selected, to some degree, based on previous personal and/or working relationships. Whom actors choose to work with, or whom actors choose to hire directly, affects the site design, the planning process, the development of the built environment, and related technology. This is to suggest that actors choose to work with other actors and groups with whom they already share meanings and interpretations. It increases certainty.

[277] "Confidential Interview with an Actor in the Private Sector."

Conclusion

Both cases demonstrate that the public-private planning process gets more complicated as the process progresses and as details are realized, and usually to the dismay of the developer. Some issues include delegations of development types and parts of the land being flipped to new owners.

Throughout the duration of the planning and development process, there are points where public and private parties come back together and negotiate more items. At such a point, the items are now contingent on a variety of factors that have now become more obdurate, because the planning and development process has begun based on previous agreements. Issues related to zoning, land use, infrastructure, and form-based code, for example, emerge in which the stakeholders are already in the process of implementing and more realistically considering. Thus, issues foreseen and/or unforeseen come up and are re-approached with more seriousness and attention to detail. These issues vary depending on the nature of the project.

ANALYSIS USING BIJKER/ PINCH THREE-STAGE METHODOLOGY

As previously discussed, the social construction of technology methodology, as originally presented by Bijker and Pinch, takes place in three steps. The first stage has to do with the identification of varying interpretations of any given technology. The idea is to analyze points of conflict that emerge within various interpretations and relate them to the design of technological artifacts. Showing that there is more than one interpretation is to establish interpretative flexibility.

The second stage of the SCOT methodology is to then look for social constructs which hamper interpretive flexibility, i.e. identify mechanisms of closure. In other words, closure is figuring out what happened in the process among actors that closes possibilities for variations (or symmetrically, what keeps them open or transformed). The appearance of closure does not ensure it, however, as closure only makes conflict appear to have gone away.

The third stage of the SCOT methodology is to determine the significance of what is revealed by the first two stages, in the context of the larger sociopolitical climate. As mentioned, the analysis using the third stage will be included in the Conclusions chapter.

The way the following analysis is organized is by way of points of conflict. Since the two stages of the methodology call for first identifying variations in interpretations (conflict), and then looking for closure mechanisms, this is how I have organized it. As mentioned, these points of conflict were drawn from the HyperRESEARCH coding mechanism, by drawing on the data coded, "Conflict or challenge."

Conflict 1: Varying interpretations of the relationship between design and build-out in the TND development process

Interpretive Flexibility

A land planner/ urban designer and a city actor have varied interpretations as to the status of the project. In different ways, they interpret the connection between design plans and what has been built. From the view of the designer, the anticipated outcome has yet to be realized. The designer says that sharing a particular vision and a plan with a particular developer at the front-end of the process informs his view. The designer

reports that when that particular developer was no longer involved in the process, the physical details of the project were bound to change by nature of his continued lack of involvement. To quote:

> It's probably an aspect of any project, where that baton's been passed to others and it can't help but be morphed somewhat. And it doesn't matter, how much to what degree of what's on paper and what's entitled and so forth, there's going to be some transformation.[278]

Specifically, it is the opinion of the designer that the build-out of the commercial development has not yet met expectation. The designer sees that the commercial aspects are "completely undeveloped" and describes the status of the mixed-use development as a "single family residential community right now." Overall, the designer does not see the physical aspects as meeting the expectations of the plan as s/he and others designed. The designer will continue to push for the physical aspects of the plan as originally envisioned.[279]

On the other hand, the city actor interprets the situation differently. The city actor sees that all is going according to the regulating plan. S/he is focused on the creation of a sense of place and sees the current build-out as achieving such. Since the city actor interprets the current build-out as being on target with original agreements according to the regulating plan, s/he thinks that what has been done thus far lives up to the expectation. Specifically, s/he believes that the current build-out of single-family architecture and amenities, unto its own, creates the environment that was expected, i.e. a place to congregate.

---

[278] "Confidential Interview with Actors in the Public and Private Sectors."
[279] Ibid.

The designer does not see it this way. The designer's interpretation is that a sense of place has not been created and will not be until the other aspects have been built as according to the original plan. These aspects include commercial development components and an intentional creation of public space by overall physical form.

In a third interpretation, a homebuilder interprets that the build-out of the amenities (parks, open space, creation of sense of place by way of physical attributes) is inconsistent with the public's desire to buy the housing. The homebuilder "knows" that regardless of the original plan or the regulating plan, the build-out of such amenities is counterproductive to the sale of homes. S/he sees that investment in such amenities only raises the cost of the houses, and posits:

> The idea that we could get premiums because we had all these facilities here- open space, parks- didn't turn out. In fact, we had to discount the houses to sell them, because people came over here and said, "Gosh, well I can go over to XYZ subdivision a mile away and I can get a 65x135 foot lot and 2000 square feet house for 180k," and you want 190 here. Well the reason we want 190 is it costs a lot more to develop this.[280]

This homebuilder will push for the elimination of amenities that incur any expenses for the remainder of the development process. S/he will advocate for a situation that creates less expensive architecture and more commercial development.

Mechanisms of Closure

Closure has not been reached in regards to the discourse among actors (rhetorical closure has not been achieved). They represent different relevant social groups with different meanings attached to different expectations of the outcome. Being that three

[280] Ibid.

different actors interpret the status of the build-out of the project in different ways, and two of the three will continue to push for varying designs as the project continues, design flexibility still exists.

As demonstrated by the comment of the designer, even after putting things on paper, which represents some level of agreement, design is still flexible. The implication for the social construction of mixed-use development is that design flexibility exists even while physical construction is taking place. I.e. plans can change, uses can be re-designated, pieces of the plan can be adapted or abandoned, all while in process, due to ongoing contingent forces, such as evolving decisions of the city (codes/ regulations) and market forces. So even though actors may come to an initial agreement, and supposedly design flexibility has reached closure, things can still change.

Within this context of design flexibility existing even during the construction phase, different actors are vying to uphold different version of plans on paper. The role of the actors upholding various models is significant. This represents the continuation of interpretive flexibility. The main issue is the build-out of commercial parts of the project. The designer will push to uphold the original plan. The city actor is satisfied continuing "as-is" and will likely facilitate that version of the process as needed. The homebuilder has arrived at a point beyond upholding a particular plan and will push for the most cost-effective implementation of whatever is decided.

The build-out of the commercial section demonstrates closure for the architecture and supportive technology on that land area. It has been built and will stay. The closure

mechanism in this case has to do with economic pressures that dictated the commercial needed to be put into place in order to generate funds for the continuance of the project.

Conflict 2: Varying interpretations of the relationship between design and build-out specific in the TOD development process

Interpretive Flexibility

In the case of the TOD project, there is a difference of interpretation among actors about the implementation of the design of the TOD in relation to which factors most strongly influence it. For example, a planner in the public realm inherently believes, that, in order to properly implement TOD, much hard work is invested in the design. About planning a TOD project, the planner states:

> In the design, you're making it seamless and easy to take transit, walk, bike, and, you know, that's easier said than done, like a lot of things, but it's really, really difficult. It can be done, but it's tricky.[281]

This planner sees a TOD project as a balance between regulations, reality, and negotiation. S/he sees the design, and the resulting final product, as a balance of these three things.

A second actor, from the public-private sector, believes that- independent from the design- it is an issue of supply and demand. S/he relates TOD with walkable or urbanist communities, at-large, and believes that any of these types of models are more expensive and challenging to build than conventional models because demand is greater than supply. (This actor uses the terms, "walkable" and "urbanist," interchangeably).

[281] "Confidential Interview with Actors in the Public and Private Sectors."

A third actor, a city planner, is skeptical of the public-private actor's take on supply and demand. This actor believes, outright, that TOD is more difficult to do than non-TOD. The planner attributes this, in part, to the fact that TODs are new, and, thus, by nature, are more challenging due to a learning curve and lack of standardization.

Mechanisms of Closure

The project has reached a working physical form and the actors have varying interpretations. Design flexibility has reached closure by nature of the fruition of the build-out. Interpretive flexibility on behalf of the actors continues nonetheless.

These actors are not necessarily in direct conflict about the virtues of TOD. Yet, their varying interpretations demonstrate that they are not on the same page in regards to their specific interpretations in the context of the conversation (not only evidenced by this data but also as witnessed by way of participant observation). In a focus group, from which this data was collected, these actors assumed competitive roles, to some degree, by association with the agencies for which they work. That is to say, while they may have larger ideals in which they believe and agree, they disagree in the workings of the details. Actors are divided by relevant social group.

One actor made a strong case for supply and demand at this particular point in the communication. This same actor represented his/her perspective differently in a majority of the focus group interview overall. This actor is a proponent of TOD and urbanist models, in general, yet, at the same, time sees that a viable strategy in pushing for the creation of demand has to do with facilitating the adoption of such models first. It is

possible that this actor is shifting his/her interpretation. His/her frame of interpretation may be aligning with those of New Urbanism.

Similarly, the city actor also attributes the issue as having to do with adoption. Thus, these two are not necessarily in conflict, but they are unable to see this in the heat of the conversation. If they were able to see eye-to-eye, there may be implications for closure. Lastly, if the first two actors were able to align their interpretations, it is reasonable to conclude that such would be consistent with the interpretation of the first actor.

Conflict 3: Right of Way Dedication

Interpretive Flexibility

According to one city actor, issues having to do with the consideration of right of way dedication many times involve particular roadways that have been previously identified for future expansion as designated by a larger plan. Over time, the City may reconsider plans with a new outlook based on a different policy. For example, the City may solidify a firm decision that some urban roadways are not to be expanded for additional vehicular capacity. This actor interprets that this reflects a policy shift over the last decade or so.

Such regulations are in place at the front-end of a mixed-use development process, and the City requires the dedication of the "ideal" right of way width. This can cause a conflict with new policy that is introduced, such as the requirement that buildings be built closer to the street (in order to have sidewalks and create a pedestrian presence).

Sometimes the curb line of the street may land on private property or on the City's right of way, but this can vary throughout the city. If the property line falls on private development property, it follows that only the private developers can develop on that property line. This, according to the City, can cause conflict. Also, according to the city planner, if the property line is far from the curb, automatically the pedestrian interface is lost.

At the same time, from the point of view of a planner, some roadway will be needed for the creation of a bike lane or additional bike lanes. It depends on the location, becomes very context-specific, and varies throughout the city per development. Thus, consideration is made on a "site plan by site plan basis" depending on what the City's priorities are at the time. The planner must consider a variety of factors, such as:

- Whether roadway expansion is really likely to happen or not
- Whether any roadway expansion would be needed for bike lanes
- How might the City partner with private development to fulfill needs for right of way expansion or development
- Whether the city has the funding for the expansion at the time

It is key that the planner does not want to give away the right of way. A city planner wants to hold on to it for when the City might have funding or partner with a private developer in the future.

Mechanisms of Closure

Roadways in a holding pattern identified by the City for future use (yet to be determined) represent temporary closure. The lid of the black box has been closed for

groups outside of alignment with city entities. The lid of the black box can be opened by funding. The actor's use of the word "ideal" infers the continuance of design flexibility. There is controlled design flexibility in the interests of the amalgamate city group.

As one actor, a city planner, describes it, when there is consideration of right of way dedication, many times particular roadways have been previously identified for future expansion as designated by a larger plan. But over time, the City may reconsider plans with a new outlook based on a different policy. Among groups within city government, interpretive flexibility and design flexibility still exists. The City could decide to redefine the problem.

Conflict 4: "Downtown" or "Town Center"

Interpretive Flexibility

Throughout the planning and development process, at-large, relevant actors held varying interpretations as to what defines a "town center." Actors differed in their opinion as to what should generally characterize the built form of the typology. Points of disagreement emerged in regards to the difference between a "town center" and a "downtown."

One stakeholder in the public realm described his/her intention for advocating for what he/she calls a "downtown district." This stakeholder was explicit in explaining that what he/she had envisioned from the inception of the project was a downtown district. This stakeholder differentiates a downtown from a town center. From his/her point of view, the city needed a downtown akin to those of older, larger cities and *not* a "town center."

Another stakeholder, in the private realm, recognized the City's push to create a downtown area, yet uses the words "downtown" and "town center" interchangeably. This stakeholder discusses the planning process by placing the most emphasis on the development of a "downtown" or "town center" in relation to the overall landscape design. This stakeholder focuses on either as being in the context of traditional neighborhood development planning.

A third stakeholder, from the public realm, does not so much differentiate between a "town center" and a "downtown" but focuses on the concept of some form of a central space in relation to the overall urban pattern. This stakeholder uses multiple words to describe the desired form, from his/her perspective, yet when speaking of the official competition, he/she refers to it as a "town center."

Mechanisms of Closure

The confusion surrounding the meaning of a "town center" or "downtown" clearly demonstrates a lack of a shared meaning among actors. This is a semantic conflict representative of something more. Physically, closure of a "town center" or a "downtown," as characterized by all accounts, was never achieved. The City decided to pull out and locate municipal buildings elsewhere. (This begs the question: *Which types of city buildings are considered essential to a town center or downtown scheme?*) This represents temporary closure by redefinition of the problem. Semantically, closure was reached in writing by plans and marketing. Not long after the departure of the

"visionary" leader, actors did align with the use the term "town center," a term that echoes "town planning."

As we have seen, the City abandoned its original commitment and, in general, the status of the project, overall, demonstrates a lack of closure and continued negotiation. This is related to the absence of a coherent definition from the initial stages. The mixed-use development process increases in complexity as it goes forward; thus, the complexity of the confusion gained momentum surrounding actors' interpretations of the meaning of the artifact. This contributed to the construction of a hybrid technology, as opposed to a coherent typology.

Stage Three of the Bijker/ Pinch Methodology

The third stage of the Bijker/ Pinch methodology is to consider findings (that result from the analysis of closure mechanisms) in a larger socio-political context. As mentioned, analysis here feeds into final conclusions.

The analysis of closure mechanisms illuminates three particular findings having to do with the mixed-use development process.

1. Interpretive flexibility and design flexibility in the mixed-use development process can vary in their relationship to each another and exhibit varying degrees.

   The social construction of mixed-use development is an extended process requiring much negotiation and public talk. The process gains in complexity as it goes forward. Also, it is comprised of a variety of processes: design process, planning process, implementation process. These processes overlap and require clarification in order to reach a degree of success as defined by the actors. Design

flexibility can continue even while physical construction is taking place. Even though actors may come to an initial agreement, and design flexibility has reached closure, things can still change; the black box can be re-opened. Interpretive flexibility can continue after design flexibility has reached closure by nature of the fruition of the build-out.

2. Interpretive flexibility, as pertaining to mixed-use development as a technological system, will never reach closure.

For the social construction of mixed-use development, design flexibility and interpretive flexibility are evident throughout the process. Interpretive flexibility of the project- as a technological system- will never reach closure because actors and relevant social groups will always interpret the outcome differently.

3. Varying mechanisms related to closure can be used as a tool in mitigating power relationships, particularly for relevant social groups associated with city government.

As mentioned, Kline and Pinch updated their version of the social construction methodology in 1996 to give greater attention to: "the social structure and power relationships within which the technological development takes place."[282] At the time, they also mentioned the importance of the relationship between the artifacts and the social groups. They recognize that it is useful to look at how social groups shape technology, and "also how the identities of social groups are reconstituted in the process."[283]

[282] "Confidential Interview with Actors in the Public and Private Sectors."
[283] Kline and Pinch, "The Social Construction of Technology."

In processes of negotiation in the mixed-use development process, the most evident points of closure (or temporary closure) are enacted by city actors. There are numerous conflicts that are put to an end by the will of the City. The City has the power to act on behalf of its own interests. Negotiation is not required. Thus, channels for negotiation are not provided.

It is evident that the City uses closure mechanisms as a way to make particular technological components unavailable to other relevant social groups. The City employs closure to make it appear as though the conflict has been settled, when in reality, the conflict continues, but behind city walls.

Analysis of closure mechanisms led to unique insights about the social construction of mixed-use development. This stage of the methodology is particular helpful in identifying points of struggle in the design, planning and implementation of the project. The three-stage methodology helps to further highlight issues of analysis related to mixed-use development being a complex *system*, as opposed to an artifact. Thus, design flexibility and interpretive flexibility are exhibited in varying degrees in different stages of the mixed-use process.

In thinking about the how these insights relate to the larger socio-political context, these cases of public-private partnership illuminate the power of government groups. In both cases, the City represented the groups with the most power and influence. We often think of the developer as exercising the most influence, but for these public-private projects, this was not the case. While actors, representative of groups related to both

development and City groups were strongly aligned, at the end of the day, it was the developers who were at the mercy of the City.

Engrained in development groups is an evident spirit of capitalism. The data, by and large, supports that actors of the development sphere are nearly possessed with thinking in terms of what is good for the "consumer" or the "end-user" (often masked as the "public"). Dually, the data supports that developers have been taught, or know what they know, by what is perceived as valuable to consumers. Developers know that the suburban typology is a proven recipe for success. But, as developers witness a momentum is gaining for the adoption of a "new" typology, their frames of interpretation are shifting to interpret mixed-use development as a new commodity.

Meanwhile, government groups mitigate the commodity type, and they have the power and the tools to do so. Regulation is one way. Giving the appearance of closure is another. Government groups are always in flux, but planners bring to public talk a century-long discourse about the ideals of town planning. This discourse embodies deeply-rooted philosophical and political beliefs concerning democracy and capitalism, and how they relate to the built environment.

The New Urbanist frame of interpretation offers a way for groups to align. Government actors promote a mixed-use typology, in step with the historical discourse, while development groups see it as a new commodity. As frames align, and the mixed-use development typology gains social momentum, it is approaching the achievement of material momentum.

Chapter 5: Conclusions

In this chapter, I offer the synthesized conclusions I was able to draw from the research and analyses compiled in this paper overall. I have organized conclusions into the following sections: answering the research question, larger socio-political milieu, implications for typological momentum, research approach and methodology, and anticipated criticisms and future work.

ANSWERING THE RESEARCH QUESTION

A purpose of this research was to answer the question, *How is mixed-use development, as a technological system, constructed?* In the following sub-sections, I summarize and describe responses to this inquiry. I would like to qualify that these conclusions apply to cases of public-private, mixed-use development in central Texas. Below, I treat "mixed-use" to encompass this distinction.

By a Fitting Together of a Collective Jigsaw Puzzle by Relevant Social Groups

Most concisely, Andy Coupland was right. The fragmented, if not incoherent, pieces of mixed-use development are fitted together like a jigsaw puzzle by relevant social groups. The metaphorical pieces are loaded with history and politics, both local and overarching, as interpreted by actors of relevant social groups.

A mixed-use development project is a collaborative process and an iterative mix, if not jumble, with an array of design and implementation decisions. It is a sustained struggle, and juggle, of factors with different actors and social groups vying for closure mechanisms that cater to their interests. The scene of this struggle is one characterized

by an adopted suburban typology. A mixed-use typology brings a competing array of puzzle pieces.

By Marketing It as a Typological Commodity

Mixed-use development is interpreted as many things by many actors. Still, at the end of the day, actors align around successful adoption by the end user. Actors are working within a structure of capitalism that is seemingly inescapable.

By Gaining Momentum as a Sociotechnological System

Hughes makes a distinction about varying degrees of influence among the social and technical components of a technological system. As dueling components are weighted, sometimes the technical aspects can gain momentum over the social. He understood the term "sociotechnological" to imply a distinct level of social influence.

In addition to the inordinate amount of social complexity that goes into the construction of a mixed-use development project, mixed-use, as a typology, is vying for momentum, in conflict with an obdurate suburban typology. Given these factors, mixed-use development can be characterized as a sociotechnological system until it gains enough momentum to become obdurate as a typology, at which point it will be an obdurate technological system.

By Establishing a Shared Meaning among Relevant Social Groups in the Initial Stages of the Design Process

It is imperative for success, as defined by relevant social groups, that groups have some assimilation of a shared meaning of the mixed-use development typology. A

shared understanding facilitates design and implementation processes. In the absence of a shared understanding, the result could be a different typology or a hybrid typology.

LARGER SOCIO-POLITICAL MILIEU

This space is to combine the findings of the Bijker/ Pinch three-stage methodology (at the end of the previous chapter) and the larger political and historical contexts. Analysis of mixed-use development understood as a technological system illuminates themes of cultural ideologies.

City Governments Lead Social Determination of Typological Choices

In modern cases, cities might adopt a New Urbanist interpretation, which points to the promotion of a mixed-use typology. Since industrialization, city governments have aligned with developer groups and real-estate groups (and others) to promote the suburban typology. Previous to industrialization, similar alignments led the determination of city structure.

City governments set the stage for what the options will be. While typologies do not possess an inherent momentum, the decisions that city governments make about land and the built environment determine what types can be selected. City governments empower typologies with agency.

The Absence of Democratic Technologization Disenfranchises the Public

Public disenfranchisement is imminent in the absence of a democratic technologization. The public-private, mixed-use development process is not democratic. The general public is disenfranchised from the process, and, at times, so are the private

actors involved. There are "no clearly defined social channels"[284] for involvement or negotiation.

Even in the face of a historical planning tradition laced with racism and affordable housing controversies, the interests of minorities or of low-income people never even came up. Winner suggests that the absence of a democratic process is to detach from morality and philosophy, and is to create a void, where there is not a channel for accountability.

Borgmann is relevant. Philosophy *must* be absent- separated from material culture. How else can one explain the absence of "the ethical obligation to account for Enlightenment?"[285]

IMPLICATIONS FOR TYPOLOGICAL MOMENTUM

Typologies Gain Momentum if They are Materially Introduced

By nature of realizing built form, a typology gains momentum. The degree to which the typology continues to gain momentum is dependent on social adoption. The built form does not, on its own, gain momentum. Typological momentum is both material and social.

Throughout history, including these modern case studies, there is a strong, "build it and they will come," mentality. Actors of relevant social groups, who are advocating

---

284 Langdon Winner, "Citizen Virtues in a Technological Order," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 65.

285 Albert Borgmann, "Moral Significance of the Material Culture," in *Technology and the Politics of Knowledge* (Indiana University Press, 1995), 86.

for a new type, consistently anticipate that, if a prototype is introduced, it will seamlessly: a) embody the will of their respective ideologies, and b) spark a movement.

Among others, Howard, the CNU, and a planner in the TOD case, all express that if they, "could just get a prototype out there," subsequently, frames will align, resulting in social reform. But as history documents, and as Walters and Calthorpe warn, "pure" intentions and design principles do not sustain, but capitalism and typologies as commodities do.

Typological Artifacts Have No Systematic Effects

Typologies do not possess an inherent quality that is capable of determining use or behavior. Building a mixed-use development does not mean that people will interpret it or use it in a systematic way. Constructing a village characteristic of town planning will not have the same effects when situated in different places.

Actors may think that the construction of a particular typological system will have a predictable effect, yet they simultaneously underestimate the agency of the public. This relates to the previous conclusion, and points to a failed determinism.

RESEARCH APPROACH AND METHODOLOGY

This section is dedicated to conclusions having to do with research methods and their efficacy as tools for analysis in the research process.

A Social Construction of Technology Approach Requires Expansion and Adaption to Effectively Function as a Tool for Analyzing Technological Systems

The social construction of a technological system is far more complicated to explain than the social construction of an artifact. This may seem an obvious conclusion,

but I did indeed attempt to apply analytical tools meant for an artifact, to a system. In the end, I agree with Hughes and Cowan that a strict application of a social construction of technology theory is not sufficient for describing the complexity of relationships among relevant social groups involved in the development of a (mixed-use) system. The Bijker/ Pinch approach- inclusive of its prescription for identifying relevant social groups and the three-stage methodology- can be expanded to include a more meaningful analysis of technological systems, as opposed to artifacts.

The working parameters of the term "relevant social group" became too limited as an analytical tool in the discussion of social construction of mixed-use development. I found myself building on the Bijker/ Pinch prescription to create more specific terminology and explore two new terms: "tacit social group" and "amalgamate social group." This was an exercise of flexibility and innovation in my own work, which enabled me to move forward in the methodological process (by employing the new terms to comprise a kind of analytical depository). This was an effective move, because moving forward to the third stage was where some of the richest analysis emerged (based on the Bijker/ Pinch/ Kline approach). In this way, the Bijker/ Pinch three-stage methodology proved to be very effective in harvesting meaningful insights.

Grounded Theory Approach is Flexible yet Daunting

Given the grounded theory approach, I frequently returned to the literature when new themes emerged. That being said, this process has taught me that such an approach may lead to one's work to seem to be inconclusive. The literature was continuously

updated, and that may show. The grounded theory approach implies that one's work is never done, by nature of continual feedback loops.

Using a grounded theory approach, I continually negotiated my position. I learned that this is not unlike "established" research paradigms. That, even they, are dynamic. The researcher is hard-pressed to identify consistent research methods, because they are in flux. Founders of methodology faction off or literature is updated. Interestingly, even though the essence of this realization is glaringly consistent with constructivist thinking, I lost sight of this while I was immersed in the research process.

ANTICIPATED CRITICISMS AND FUTURE WORK

In this final section, I share insights about the research process based on the constructivist tenet, reflexivity, and make an observation for future work.

Exercising Reflexivity in One's Own Work Offers Unexpected and Meaningful Insights

When I began the research process, I was aware of my own bias in regards to a particular area of study and profession. This area has to do with race relations and issues of diversity. I did not want this particular bias to dominate my interpretations in the research process. I attempted to exercise as much objectivity as possible, and try not to wear my "race relations" lens.

Thus, an anticipated criticism is that the thesis does not reflect a satisfactory description of issues relating to race. I intentionally tried not to focus on it. Issues related to themes of race and diversity did not emerge explicitly in the coding process. But there were points where my interpretation was that, if further probed, there was likely

something more there. I coded such data as "implicit exclusion," and perhaps did this for my own peace of mind.

In an attempt to exercise the principle of reflexivity, I, at one point, went back through my work and saw that issues of race relations were there anyway. Particularly, in the history of settlement and development in Texas, it was obvious that early settlement patterns required battles across race.

Recognizing this theme then saturated my "objectivity," and I saw connections I did not see previously that, as a result, needed some explanation. This, in conjunction with the grounded theory approach, dictated that I return to the literature and include at least some discussion about these issues, such as the effects of Urban Renewal.

This leads to a motivation for future work; to tie themes of race relations into the social construction of mixed-use development.

Appendix A

[redacted] / Group Interview Process
Friday, December 3, 2010

For both sites, a semi-structured group dialogue will take place. The following is an outline of how we will facilitate the discussion, allowing some room for flexibility and adaptive iteration based on that which emerges. Amy will lead the discussion, offering points for [redacted] to make inquiries for clarification. *Team- I am thinking you can have on hand the questions we originally outlined, and pay attention for questions answered and unanswered, and then perhaps interject them where pertinent.*

00:00 We will open with an introductory question regarding planning and development in general. The question will serve as an ice-breaker, an opportunity for participants to introduce themselves and their perspectives, as well as open up the conversation at the general level first, before delving into the content of the specific projects.

(Amy) *Greetings everyone and thank you for coming. As you may know [redacted] and I are interested in <<Mixed Use Development ([redacted])>>. We are researching this for our final reports and theses in the UTCRP Program. As a team, we are especially interested in learning about the relationship between the vision, the process and the outcomes. We are very happy to have the chance to gain your insights and perspectives and really appreciate you taking the time to be here.*

We will start by going around in a circle. We ask that participants introduce themselves by telling everyone their names and their investment in planning and development. It would be helpful if you are able to briefly share with us a little about your background and education, your current role or position, and/or any personal investment or passion you may hold for planning and development projects. For the others here- the students, [redacted]- it would be helpful for you to simply state your name and your current role or position to the group. I'd like to emphasize the fact that this go-round is at the general level; we will talk specifically about <<this project>> in a moment. Please take about 2 minutes each, and

<<student researcher>> will let you know when you have 30 seconds remaining.

00:10 We will next ask participants to share their viewpoint on the specific type of development, again at the general level.

(Amy) *Okay, great, thanks for sharing. We will go around in a circle format two more times before moving into more of an open group discussion. This time we ask that each participant share their opinions and viewpoints on <<TOD Development ([redacted])>>or <<Mixed Use Development ([redacted])>> in general, not necessarily applying it to this specific project just yet. We would like to know about your perceptions and expectations of such development; such as, how do you define it? What do you expect it to be? Do you associate it with sustainability, and if so, how? This time, each participant will have up to 4 minutes to share their opinions, and <<student researcher>> will let you know when you have 1 minute remaining.*

00:26 Next, we will move into asking questions about participants' specific involvement in the project.

(Amy) *Okay, similar to the previous questions, we will now go around and ask you to share about your perspective, but this time about this particular project. If you could tell us about your particular involvement in the project, your initial vision or reasons for involvement, and any general commentary you may have about the project. Each participant will have 4 minutes again to share.*

00:42 At this time there will be a check-in point for [redacted] to ask questions for clarification.

(Amy) [redacted]*, might you have any questions for clarification?*

00:47 Next, we will start asking more pointed questions, allowing for the participants to discuss amongst and respond to each other.

(Amy) *Now we are going to ask more specific questions about the project. This is more of an open group discussion and you may respond to each other.*

1- Can you tell us about each phase of the project? Who was involved and what role did each player have in the development process?

2- Do you think there was a shared vision of the project? If so, were there any challenges or catalysts associated with the project vision?

3- When planning the project, how was demand assessed?

4- Were there any changes that were made during the steps of the project? If so, what was the reasoning behind these changes?

5- What level of cooperation existed between private and public entities throughout the process? For each step? And how would you characterize the interaction between the public and private realms for the project?

6- Were there any incentives from the City or public entities provided? Was there an anticipated public benefit?

7- What is your opinion about the overall expectations of the project and whether the project met those expectations?

7- What can you tell us about the end financial results of the projects? How have sales and leasing gone so far? How do they compare to original expectations?

8- Overall, do you think the project was successful or unsuccessful? Why or why not?

01:25 Check-in point for [redacted]

(Amy) [redacted]*, might you have any questions for clarification?*

01:35 Wrap-up

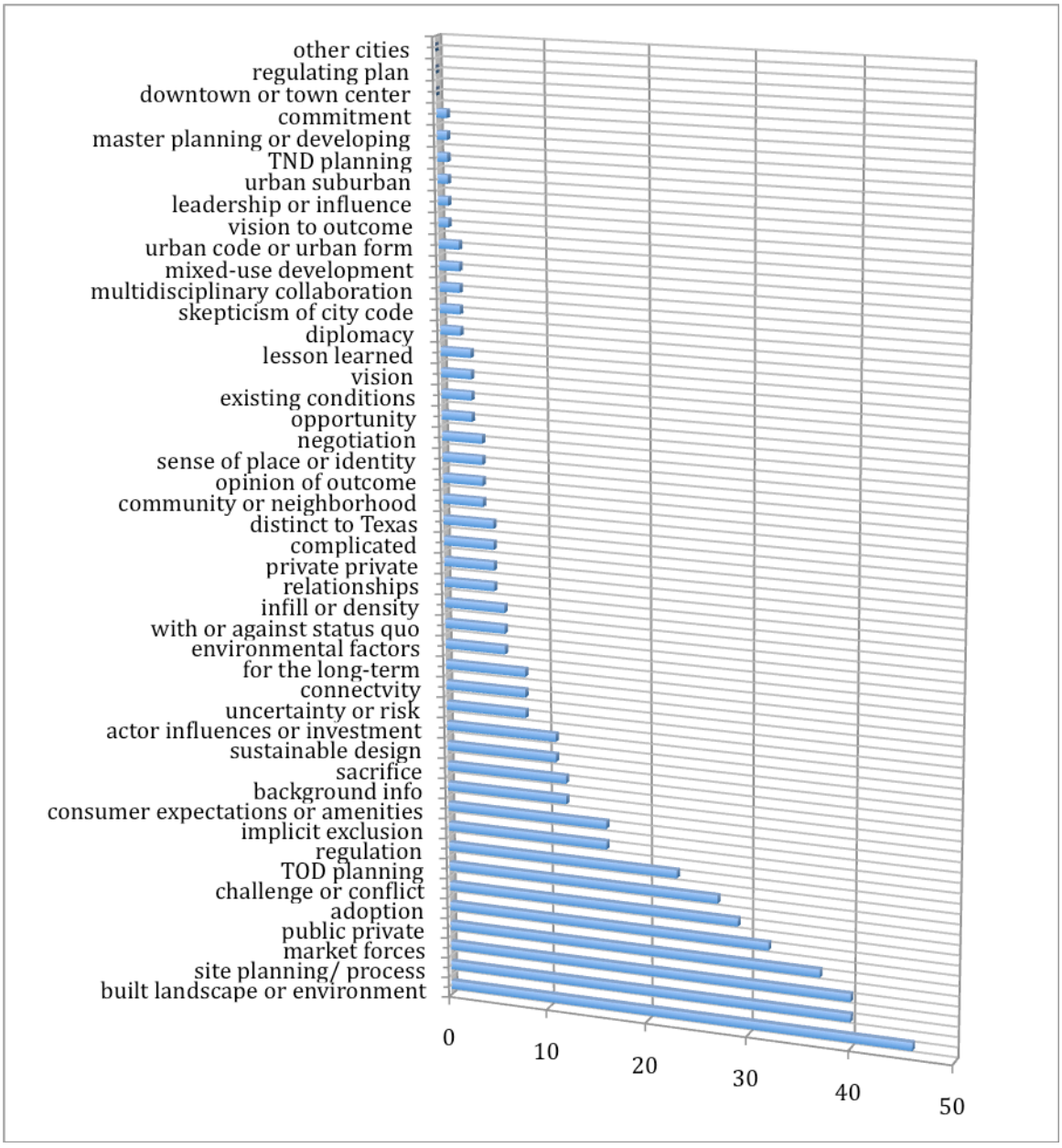
(Amy) *At this time we would like to ask you about:*

a) *if there is anyone else you might recommend we speak with, and*
b) *if you are personally open to an individual interview or a follow up email should we have further questions.*

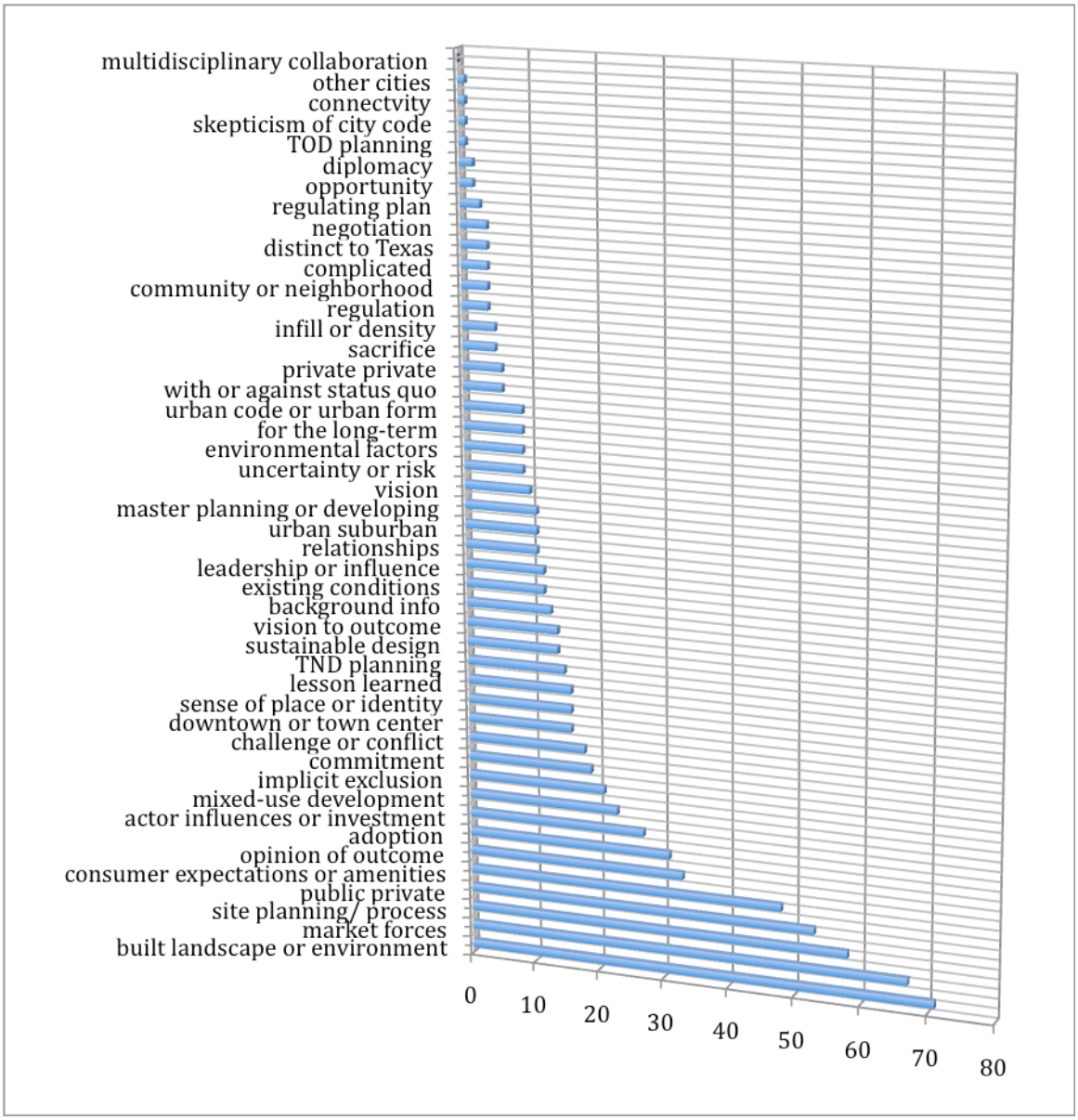
1:50 Adjourn

(Amy) *Again, we thank you so much for your time and insights!*

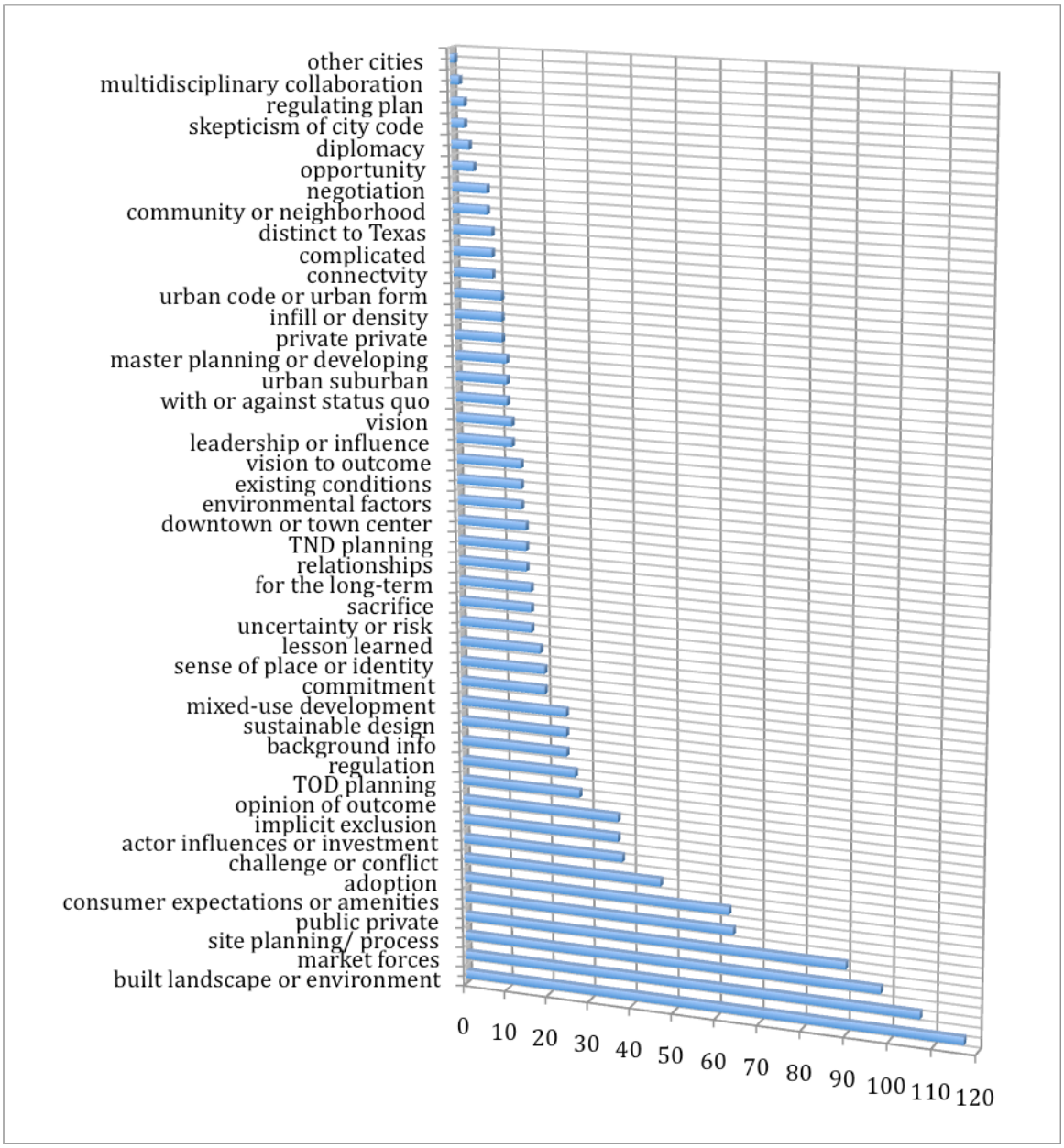
Appendix B



Code frequency graph for a transit-oriented development in central Texas.
Source: Amy E. Jones, 2012



Code frequency graph for a traditional neighborhood development in central Texas. Source: Amy E. Jones, 2012



Code frequency graph for combined case studies: a transit-oriented development and a traditional neighborhood development, both in central Texas.
Source: Amy E. Jones, 2012

Bibliography

Administrator. “About GDPC.” Www.gdpc.org, April 2, 2010. http://www.gdpc.org/about.

“Anthem Park at Uptown Village.” ULI Development Case Studies, 2012. http://casestudies.uli.org/.

Bijker, Wiebe E., and John Law. “General Introduction.” In Shaping Technology/ Building Society, 3. Cambridge, MA: MIT Press, 1992.

———. “General Introduction.” In Shaping Technology/ Building Society, 4. Cambridge, MA: MIT Press, 1992.

———. “General Introduction.” In Shaping Technology/ Building Society, 2. Cambridge, MA: MIT Press, 1992.

———. “General Introduction.” In Shaping Technology/ Building Society, 1–2. Cambridge, MA: MIT Press, 1992.

———. “General Introduction.” In Shaping Technology/ Building Society, 8. Cambridge, MA: MIT Press, 1992.

Bijker, Wiebe E., and Trevor J. Pinch. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 411.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 400.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 408.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 409.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 409.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 424.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 409.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 411.

———. “The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” Social Studies of Science 14 (1984): 416.

Black, Sinclair. “River North: San Antonio.” In Emergent Urbanism: Evolution in Urban Form, Texas, 95. 1st ed. Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008.
———. “The DNA of Austin.” In Emergent Urbanism: Evolution in Urban Form, Texas, 14. 1st ed. Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008.
Borgmann, Albert. “Moral Significance of the Material Culture.” In Technology and the Politics of Knowledge, 86. Indiana University Press, 1995.
Cable, Faith. “Design First, Codify Second.” Planning 75, no. 7 (July 2009): 24.
Campbell, D.T., and D.W. Fiske. “Convergent and Discriminate Validation by the Multitrait-multimethod Matrix.” Psychological Bulletin 56 (1959): 81.
Campbell, Scott. “Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development.” Journal of the American Planning Association 62, no. 3 (Summer 1996): 297.
———. “Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development.” Journal of the American Planning Association 62, no. 3 (Summer 1996): 296–312.
City of San Antonio Planning Department. “Growth Trends”, San Antonio, July 2007. www.sanantonio.gov/planning/powerpoint/Growth_Trends_092506.pps.
City of Seattle Department of Planning & Development and University of Washington Department of Urban Design & Planning. Studio Report- Urban Form in South Lake Union. Seattle, Washington, Fall 2005. www.seattle.gov/.../UW_SLU_Studio_Report_fall05_Draft_LatestReleased_DPDP_020376.pdf.
“CNU: Congress for the New Urbanism.” CNU, 2011 1997. http://www.cnu.org/history.
“Confidential Interview with Actors in the Public and Private Sectors.” Face-to-face focus group, December 4, 2010.
“Confidential Interview with Actors in the Public and Private Sectors.” Face-to-face focus group, December 4, 2011.
“Confidential Interview with an Actor in the Private Sector.” Face-to-face interview, December 4, 2010.
“Confidential Interview with an Actor in the Private Sector.” Face-to-face interview, March 3, 2011.
“Confidential Interview with an Actor in the Private Sector.” Face-to-face interview, March 23, 2011.
“Confidential Interview with an Actor in the Private Sector.” Telephone interview, March 30, 2011.
Coupland, Andy. Reclaiming the City: Mixed Use Development. London: E & FN Spon, 1993.
———. Reclaiming the City: Mixed Use Development. London: E & FN Spon, 1993.
Cowan, Ruth Schwartz. “The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology.” In The Social Construction of Technological Systems, 261. Cambridge, MA: Massachusetts Institute of Technology, 1987.

———. “The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology.” In The Social Construction of Technological Systems, 262. Cambridge, MA: Massachusetts Institute of Technology, 1987.
———. “The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology.” In The Social Construction of Technological Systems, 263. Cambridge, MA: Massachusetts Institute of Technology, 1987.
Coy, Peter. “How Houston Gets Along Without Zoning.” Www.businessweek.com, October 1, 2007.
David A. Snow, Steven K. Worden, E. Burke Rochford, Jr., and Robert D. Benford. “Frame Alignment Processes, Micromobilization, and Movement Participation.” American Sociological Review 51, no. August (1986): 464–481.
Degollado, Jessie. “Bexar County Judge Warns Of Urban Sprawl.” Www.ksat.com, November 14, 2011. http://www.ksat.com/news/Bexar-County-Judge-Warns-Of-Urban-Sprawl/-/478452/4744696/-/h3npo6/-/index.html.
Dumouchel, Paul. “Gilbert Simondon’s Plea for a Philosophy of Technology.” In Technology and the Politics of Knowledge, 258. Indiana University Press, 1995.
Eduardo Aibar, and Wiebe E. Bijker. “Constructing a City: The Cerda Plan for the Extension of Barcelona.” Science, Technology and Human Values 22, no. 1 (1997): 3–30.
Feenberg, Andrew, and Alastair Hannay. “Preface.” In Technology and the Politics of Knowledge, ix. Indiana University Press, 1995.
Feenberg, Andrew. “Subversive Rationalization: Technology, Power and Democracy.” In Technology and the Politics of Knowledge, 3. Indiana University Press, 1995.
Fisher, Lewis F. Saving San Antonio: The Precarious Preservation of a Heritage. Lubbock, Texas: Texas Tech University Press, 1996.
Fishman, Robert. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 56. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 21. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 22. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 25. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 23. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 52. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.

———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 56. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
———. “Urban Utopias: Ebenezer Howard, Frank Lloyd Wright, and Le Corbusier.” In Readings in Planning Theory, 46. Second ed. Malden, MA USA: Blackwell Publishers Ltd., 2003.
“forwardDallas! Comprehensive Plan.” Www.dallascityhall.com, 2006. http://www.dallascityhall.com/forwardDallas/comprehensive_plan.html.
“forwardDallas! Comprehensive Plan”. City of Dallas, June 2006. http://www.dallascityhall.com/forwardDallas/comprehensive_plan.html.
Fulton, Duncan T. “Dallas Arts District.” In Emergent Urbanism: Evolution of Urban Form, Texas, 98. Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008.
———. “Dallas Arts District.” In Emergent Urbanism: Evolution of Urban Form, Texas, 100. Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008.
Gault, Jaclyn. “Great Planning Disasters, Review”, May 2005. http://jaclyngault.com/writtenworks/writtenworks.html.
Gieryn, Thomas F. “What Buildings Do.” Theory and Society 31, no. 1 (February 2002): 35–74.
Godschalk, David R. “Land Use Planning Challenges: Coping with Conflicts in Visions of Sustainable Development and Livable Communities.” Journal of the American Planning Association 70, no. 1 (Winter 2004): 5–13.
Grant, Jill, and Katherine Perrott. “Where Is The Cafe? The Challenges of Making Retail Uses Viable in Mixed-use Suburban Developments.” Urban Studies 48, no. 1 (2011): 177–195.
Hall, Peter. “Overview.” In Great Planning Disasters, 1. Berkeley and Los Angeles, California: University of California Press, 1980.
———. “Overview.” In Great Planning Disasters, 2. Berkeley and Los Angeles, California: University of California Press, 1980.
———. “Overview.” In Great Planning Disasters, 5. Berkeley and Los Angeles, California: University of California Press, 1980.
———. “Sydney’s Opera House.” In Great Planning Disasters, 148–149. Berkeley and Los Angeles, California: University of California Press, 1980.
———. “The Anglo-French Concorde.” In Great Planning Disasters, 90. Berkeley and Los Angeles, California: University of California Press, 1980.
———. “Towards Prescription.” In Great Planning Disasters, 249. Berkeley and Los Angeles, California: University of California Press, 1980.
Hess, David J. “Introduction.” In Alternative Pathways in Science and Industry, 4. Urban and Industrial Environments 30. Cambridge, Massachusetts and London, England: The MIT Press, 2007.

———. “Introduction.” In Alternative Pathways in Science and Industry, 2. Urban and Industrial Environments 30. Cambridge, Massachusetts and London, England: The MIT Press, 2007.
———. “Technology- and Product-Oriented Movements.” In Alternative Pathways in Science and Industry, 154. Urban and Industrial Environments 30. Cambridge, Massachusetts and London, England: The MIT Press, 2007.
———. “Technology- and Product-Oriented Movements.” In Alternative Pathways in Science and Industry. Urban and Industrial Environments 30. Cambridge, Massachusetts and London, England: The MIT Press, 2007.
———. “The Transformation of Technological Fields.” In Alternative Pathways in Science and Industry, 85. Urban and Industrial Environments 30. Cambridge, Massachusetts and London, England: The MIT Press, 2007.
hsolie. “Studio Big Box: The Finale (fall 2011 Recap).” Archinect, 2011. http://archinect.com/blog/article/34596105/studio-big-box-the-finale-fall-2011-recap.
Hughes, Thomas P. “Technological Momentum.” In Does Technology Drive History: The Dilemma of Technological Determinism, 104. Cambridge, MA: MIT Press, 1994.
———. “Technological Momentum.” In Does Technology Drive History: The Dilemma of Technological Determinism, 102. Cambridge, MA: MIT Press, 1994.
———. “Technological Momentum.” In Does Technology Drive History: The Dilemma of Technological Determinism. Cambridge, MA: MIT Press, 1994.
———. “The Evolution of Large Technological Systems.” In The Social Construction of Technological Systems, 52. Cambridge, MA: Massachusetts Institute of Technology, 1987.
———. “The Evolution of Large Technological Systems.” In The Social Construction of Technological Systems, 51. Cambridge, MA: Massachusetts Institute of Technology, 1987.
———. “The Evolution of Large Technological Systems.” In The Social Construction of Technological Systems, 51. Cambridge, MA: Massachusetts Institute of Technology, 1987.
“Imagine Austin. Vibrant. Livable. Connected.” Imagine Austin, 2012. http://www.imagineaustin.net/.
Kline, Ronald, and Trevor J. Pinch. “The Social Construction of Technology.” In The Social Shaping of Technology, 113. Philadelphia: Open University Press, 1999.
———. “The Social Construction of Technology.” In The Social Shaping of Technology, 114. Philadelphia: Open University Press, 1999.
McGraw, B.T. “The Housing Act of 1954 and Implications for Minorities.” Phylon 16, no. 2 (1955): 176.
———. “The Housing Act of 1954 and Implications for Minorities.” Phylon 16, no. 2 (1955): 177.
Misa, Thomas J. “How Machines Make History, and How Historians (and Others) Help Them to Do So.” Science, Technology and Human Values 13 (1988): 308–331.

"Mixed-use." The Free Online Dictionary, May 10, 2012. http://www.thefreedictionary.com/mixed-use.
"Mixed-use Definition." 1–2. Hollywood, FL: International Council of Shopping Centers, 2006. http://www.icsc.org/2006MU/index.php.
Moneyhon, Carl H. "Reconstruction." Handbook of Texas Online, 2012. http://www.tshaonline.org/handbook/online/articles/mzr01.
Oden, Michael. "Equity: The Forgotten E in Sustainable Development." In Pragmatic Sustainability: Theoretical and Practical Tools, 41. USA and Canada: Routledge, 2010.
———. "Equity: The Forgotten E in Sustainable Development." In Pragmatic Sustainability: Theoretical and Practical Tools, 30–49. USA and Canada: Routledge, 2010.
———. "From Assembly to Innovation." Planning Forum 3 (1997): 14.
Olson, Anne. "Buffalo Bayou: Houston." In Emergent Urbanism: Evolution in Urban Form, Texas, 109. 1st ed. Austin, TX: University of Texas School of Architecture, Placemaking Studio and Black and Vernooy, 2008.
Pevsner, Nikolaus. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. A History of Building Types. Vol. 19. 24 vols. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. "Conclusion." In A History of Building Types, 19:293. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
———. "Hospitals." In A History of Building Types. Vol. 19. Bollingen Series 35. Princeton, NJ: Princeton University Press, 1976.
Pinch, Trevor J., and Wiebe E. Bijker. "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." In The Social Construction of Technological Systems, 30. Cambridge, MA: Massachusetts Institute of Technology, 1987.
———. "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other." In The

Social Construction of Technological Systems, 40. Cambridge, MA: Massachusetts Institute of Technology, 1987.

———. “The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” In The Social Construction of Technological Systems, 34. Cambridge, MA: Massachusetts Institute of Technology, 1987.

———. “The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.” In The Social Construction of Technological Systems, 39. Cambridge, MA: Massachusetts Institute of Technology, 1987.

“Population Data for Texas.” Texas Department of State Health Services, February 27, 2012. http://www.dshs.state.tx.us/chs/popdat/ST2010.shtm.

Pyatok, Michael. “The Narrow Base of the New Urbanists.” Magazine and Publications. Www.plannersnetwork.org, 2008. http://www.plannersnetwork.org/publications/2002_152_spring/pyatok.htm.

Roland, Alex. “Theories and Models of Technological Change: Semantics and Substance.” Science, Technology and Human Values 17 (1992): 90–92.

“San Antonio Master Plan Framework: Shaping the Future of San Antonio”. City of San Antonio, November 10, 2010. http://www.sanantonio.gov/planning/master_plan_comprehensive.asp.

Schwanke, Dean. Mixed-Use Development Handbook. Community Builders Handbook Series 1st Edition. Urban Land Institute, 1987.

Seymour V. Connor, The Peters Colony of Texas: A History and Biographical Sketches of the Early Settlers. Austin: Texas State Historical Association, 1959.

“Should I Move to Texas - DFW Area from NorthEast? (Dallas: House, YMCA).” City-Data Forum, December 2011. http://www.city-data.com/forum/dallas/1438947-should-i-move-texas-dfw-area-4.html.

Singleton, Royce A. Jr., and Bruce C. Straits. Approaches to Social Research. New York: Oxford University Press, 1999.

Sismondo, Sergio. “Actor-Network Theory.” In An Introduction to Science and Technology Studies, 81. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.

———. “Strong Programme and Sociology of Knowledge.” In An Introduction to Science and Technology Studies, 48. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.

———. “The Kuhnian Revolution.” In An Introduction to Science and Technology Studies, 14. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.

———. “The Kuhnian Revolution.” In An Introduction to Science and Technology Studies, 16. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.

———. “The Kuhnian Revolution.” In An Introduction to Science and Technology Studies, 17. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.
———. “The Kuhnian Revolution.” In An Introduction to Science and Technology Studies, 19. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.
———. “The Kuhnian Revolution.” In An Introduction to Science and Technology Studies, 23. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.
———. “Two Questions Concerning Technology.” In An Introduction to Science and Technology Studies, 98. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.
———. “Two Questions Concerning Technology.” In An Introduction to Science and Technology Studies, 103. 2nd ed. West Sussex, United Kingdom: Blackwell Publishers Ltd., 2010.
Smith, Merritt Roe. “Introduction.” In Does Technology Drive History: The Dilemma of Technological Determinism, xiv. Cambridge, MA: MIT Press, 1994.
———. “Introduction.” In Does Technology Drive History: The Dilemma of Technological Determinism, 4. Cambridge, MA: MIT Press, 1994.
———. “Technological Determinism in American Culture.” In Does Technology Drive History: The Dilemma of Technological Determinism, 1. Cambridge, MA: MIT Press, 1994.
———. “Technological Determinism in American Culture.” In Does Technology Drive History: The Dilemma of Technological Determinism, 3. Cambridge, MA: MIT Press, 1994.
———. “Technological Determinism in American Culture.” In Does Technology Drive History: The Dilemma of Technological Determinism, 5. Cambridge, MA: MIT Press, 1994.
“Southborough.” ULI Development Case Studies, 2012. http://casestudies.uli.org/.
Talen, Emily. New Urbanism and American Planning: The Conflict of Cultures. New York, NY: Routledge, 2005.
———. “New Urbanism and The Culture of Criticism.” Urban Geography 21, no. 4 (June 16, 2000): 318.
———. “New Urbanism and The Culture of Criticism.” Urban Geography 21, no. 4 (June 16, 2000): 319.
Tribone, Dominick. “Auto: Re-Oriented, Reconciling the Main Street Mentalities with Modern American Growth Patterns.” Cargocollective.com, 2011. http://cargocollective.com/mit/Auto-Re-Oriented.
UNCED. “Report of the World Commission on Environment and Development: Our Common Future”, 1987. <http://www.un-documents.net/ocf-ov.htm#1.2>.
“Urban Sprawl.” Environmental Literacy Council, April 2, 2008. http://www.enviroliteracy.org/article.php/409.html.

Wade, Louise Carroll. “Settlement Houses.” The Electronic Encyclopedia of Chicago, 2005. http://www.encyclopedia.chicagohistory.org/pages/1135.html.
Walters, David R. “Introduction.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 19. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 90. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 144. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 145. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 136. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 147. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 146. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 141. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 138. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 136–137. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “New Urbanism and Neighborhoods.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 142. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
———. “The Evolution of the Planning Process and the Changing Role of Urban Design.” In Designing Community: Charrettes, Master Plans and Form-based Codes, 31. 1st ed. Amsterdam and London: Elsevier/ Architectural Press, 2007.
“What Is Science and Technology Studies?” Cornell University Department of Science and Technology Studies, 2012. http://sts.cornell.edu/.
Winner, Langdon. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 65. Indiana University Press, 1995.

———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 66. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 67. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 68. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 70. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 71. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 75. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 78. Indiana University Press, 1995.
———. “Citizen Virtues in a Technological Order.” In Technology and the Politics of Knowledge, 79. Indiana University Press, 1995.
Woodcock, David G. “Some Influences on the Growth of Two Texas Cities”. Texas Chapter of the American Planning Association, July 1964. Box 2, Folder 2. The History of Planning in Texas Project Records, Alexander Architectural Archive, University of Texas Libraries, The University of Texas at Austin.
Woodhouse, Edward, and Jason W. Patton. “Design by Society: Science and Technology Studies and the Social Shaping of Design.” Design Issues 20, no. 3 (Summer 2004): 1–12.